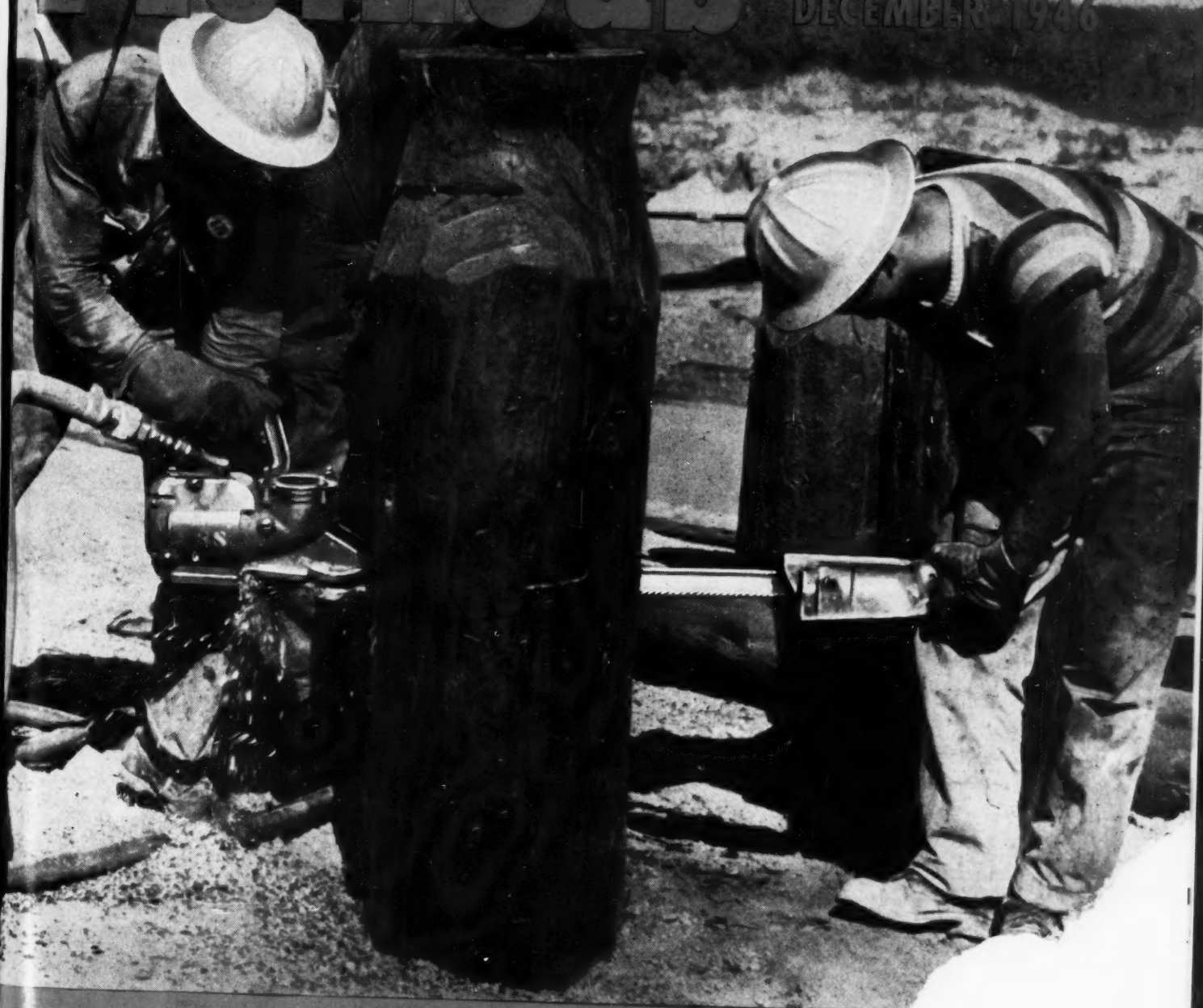


# Construction Methods

DECEMBER 1946



FEATURING SMALL TOOLS ON

Also: Barge-Mounted Multiple Lead Piledriver . . .  
Big Rigs Wheel Fill into San Francisco Airport . . .

ACCOUNTING FOR

Fourth of



*seven important*  
**ENGINEERING  
 REASONS FOR  
 SPECIFYING  
 HI-BOND  
 REINFORCING BARS**

**1. Higher Bonding Strength.**  
 HI-BOND bars provide a substantial increase in bond value as compared with present day reinforcing bars.

**2. Greater Mechanical Grip.**  
 BOND bars provide a more effective mechanical grip with the concrete irrespective of the position in which they are cast or the direction in which they

transfer.  
 a more efficient transfer of stress  
 need for hook anchorage.

th of cracks,  
 of the

steel at cracks and preserving the appearance and safety of reinforced concrete members.

**5. Greater Resistance To Slip.**  
 HI-BOND bars through superior resistance to slip reduce deflections of beams and deformations of columns.

**6. Higher Design Stresses Possible.**  
 HI-BOND bars will contribute to the effective use of high yield strength reinforcing steel and the further development of pre-stressed construction.

**7. Lower Construction Costs.**  
 HI-BOND bars in reinforced concrete will result in more efficient structures and in addition lower construction costs through conservation of materials and labor.

Write for bulletin "Engineering Tests Prove Bonding Strength of HI-BOND Reinforcing Bar."

Bars, Floor Plate, Piling, Plates, Rails, Reinforcing Bars, Sheets, Strip, Structural, Tin Plate, Track Accessories.

**INLAND STEEL COMPANY**  
 38 South Dearborn Street • Chicago 3, Illinois

Sales Offices: Detroit • Indianapolis • Kansas City  
 Milwaukee • New York • St. Louis • St. Paul

**HI-BOND**  
**REINFORCING BARS**



## Cuts and Fills

CONSTRUCTION stands partly in the shadows of dark clouds, partly in the sunshine, as the first full year of post-war reconversion draws to a close. Ominous shadows are cast by the coal strike which, no matter how soon settled, will have repercussions in steel, cement and other basic construction materials industries. Labor and materials shortages still plague the contractors. The federal housing program did not click, but still official Washington clings to building controls and restrictions that hamper all construction without benefiting housing. Equipment remains scarce, and most expected new developments are as yet only gleams in the eyes of manufacturers.

Still, there are shafts of sunlight streaming through this dark picture. Contract awards for the year are nearly three times those of 1945. Demands for construction continue to mount, promising a good market for some time to come. Despite their troubles most contractors are busy. The outlook for materials and equipment is the brightest it has been since VJ day. Removal of wage controls may cause some initial confusion, but promises labor cost stabilization in the long run.

REGARDLESS of sunshine or shadow in the industry, the Spirit of Christmas offers all construction men the opportunity momentarily to forget their troubles and rejoice with their fellow men in the Faith that shines through man-made chaos as expressed by the Biblical quotation: "Peace on Earth to Men of Good Will." In this spirit we send each and every reader that ageless heart-warming greeting . . . A MERRY CHRISTMAS AND A HAPPY NEW YEAR.

THE OPEN SHOP promises to be a major labor question next year. Already congressional leaders are mentioning it as a curb on labor's growing powers. Three more states banned the closed shop by constitutional amendment at the recent election. In one, Arizona, contractors staved off labor demands for renewal of closed-shop contracts before the amendment becomes effective. Labor announces intentions to fight these and other curbs, which adds another uncertainty to the hoped-for labor peace that must come before the country can get its industrial production into high gear.

CONSTRUCTION APPRENTICES have reached an all-time high of 83,429, according to the Department of Labor. This is good news, for only through an intensive and intelligent apprenticeship program, conducted jointly by labor, industry and government, can construction be properly manned.

HOUSING ADMINISTRATOR WYATT, who resigned early this month, had company in his troubles, for McGraw-Hill World News reports that Russian housing and building officials have produced only 40 percent of the apartments promised for 1946, and have restored only one-fifth of the civilian houses scheduled for restoration during the year. The Russians are turning to prefabrication with plans calling for prefab factories by 1950 that will turn out 4.6 million sq. meters of dwelling space annually.

Copyright, 1946

Established 1919

McGraw-Hill Publishing Co., Inc., 330 West 42nd St., New York (18)

# Construction Methods

The Construction Magazine With Picture Power

A. E. PAXTON, Publisher

WALDO G. BOWMAN, Editor

HAROLD W. RICHARDSON, Executive Editor ROBERT K. TOMLIN, Managing Editor  
New York: Nelle Fitzgerald; Patricia McGerr; Henry T. Perez

Chicago: Vincent B. Smith

San Francisco: N. A. Bowers, L. L. Wise

Washington: A. N. Carter; Donald D. Hogate

Foreign News Bureaus: London, Paris, Berlin, Prague,  
Moscow, Shanghai, Bombay, Mexico City



DECEMBER, 1946



## HERE'S HOW IN THIS ISSUE

- BRIDGE SPANS are skidded off and on abutments —p. 71
- TOOLS . . . Small arms of construction (special section) —p. 74
- MOLES' AWARDS to go to prominent contractors —p. 87
- BARGE-MOUNTED DRIVER handles 13 piles —p. 88
- CITED FOR SERVICE... Harry W. Morrison —p. 91
- ARMY CAMP is converted to student housing —p. 92
- MILLION YARDS of fill are placed monthly —p. 94
- TEST-HOLE WALLS are photographed by camera in cage —p. 102
- ROAD PACKER rolls highway surface —p. 103
- ARMY EQUIPMENT is canned in steel oil tanks —p. 104
- UNORTHODOX METHODS speed British housing program —p. 106
- TRACTOR REPAIR PARTS are delivered by air —p. 110

## ACCOUNTING FOR CONTRACTORS

FOURTH OF A SERIES OF ARTICLES—p. 98

ON THE COVER—Symbolic of the place small tools occupy in construction is this Mall chain saw cutting off pileheads on Walsh-Bates & Rogers coal pier job for the B. & O.—N. Y. C. railroads at Toledo.

McGraw-Hill Publishing Company, Inc., 330 West 42d Street, New York (18) N. Y.

### JAMES H. McGRAW, Founder and Honorary Chairman

Editorial and Publishing Offices: 330 West 42nd St., New York (18); 520 North Michigan Ave., Chicago (1); 68 Post St., San Francisco (4); 738-9 Oliver Bldg., Pittsburgh; Aldwych House, London, W. C. 2, England. Branch Offices: Washington; Philadelphia; Cleveland; Detroit; St. Louis; Boston; Los Angeles; Atlanta, Ga.

JAMES H. McGRAW, JR.  
President

EUGENE DUFFIELD  
Editorial Assistant  
to the President

CURTIS W. McGRAW  
Senior Vice-President  
and Treasurer

NELSON BOND  
Director of Advertising

JOSEPH A. GERARDI  
Secretary

J. E. BLACKBURN, JR.  
Vice-President  
Director of Circulation

CONSTRUCTION METHODS, December, 1946. Volume 28, Number 12. Published Monthly, price 25c a copy. Return Postage Guaranteed. Allow at least ten days for change of address. All communications about subscriptions should be addressed to the Director of Circulation, 330 West 42nd Street, New York (18), N. Y. Subscription rates—United States and possessions, \$2.00 a year, \$3.00 for two years, \$4.00 for three years. Canada, \$3.00 a year, \$5.00 for two years, \$6.00 for three years. Pan American countries \$5.00 for one year, \$10.00 for two years, \$12.00 for three years. All other countries, \$15.00 a year, \$30.00 for three years. Please indicate position and company connection on all subscription orders. Entered (or reentered) as second class matter December 16, 1936, at the Post Office of New York, N. Y., U. S. A., under the act of March 3rd, 1879. Printed in U. S. A. Cable address: "McGrawhill, New York." Member of A. B. P. Member of A. B. C. Contents copyrighted 1946 by McGraw-Hill Publishing Co., Inc., 330 West 42nd Street, New York (18), N. Y.—All rights reserved.

### CHANGE OF ADDRESS

Director of Circulation,  
Construction Methods,  
330 West 42nd Street,  
New York 18, N. Y.

Please change the address of my Construction Method subscription.

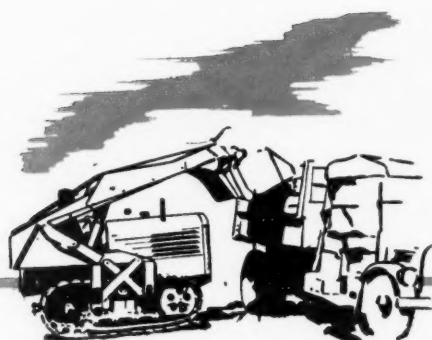
Name .....

Old Address .....

New Address .....

New Company Connection .....

New Title or Position .....



## **I**nside Information!

For extra smooth operation, *inside* diameters of all transmission gears on Oliver "Cletrac" crawler tractors are ground to close tolerances on precision grinding machines . . . added insurance that gears will run true and will shift smoothly and easily.

Through the use of modern production methods and equipment, Oliver "Cletrac" is able to build in

extra quality like this . . . at no extra cost to the user. Only the finest quality materials—only the highest type workmanship and precision machinery—are used to produce every tractor part.

Maintenance of this standard enables your Oliver "Cletrac" dealer to offer you the finest in crawler tractors—for your every need.

# **CLETRAC**

*a product of*

**The OLIVER Corporation**





*Grinding inside diameter of transmission gears in the Oliver "Cletrac" plant.*



# THE JOB JESTER

CARTOONS DRAWN FOR CONSTRUCTION METHODS



"How many years' experience did you say you had as a carpenter?"

Construction Methods



"I distinctly told you to bring me a wrench!"



FRED WEINKE

"Now I'll find out if these safety helmets can take it."

**INCOR' HELPS**

# BREAK TRADITION

**DEPENDABLE 'INCOR' HIGH EARLY STRENGTH SPEEDS ERECTION OF TWO 3-ACRE PRECAST WAREHOUSES**

Combining the characteristics of monolithic construction with light weight and economy in material and labor, the two one-story, three-acre concrete warehouses at Naval Supply Depot, Mechanicsburg, Pa., mark a significant forward step in building. Columns, hollow-box girders and roof slabs precast at job site, were joined by bolting, welding and grouting. Tradition was put aside. Instead of stripping forms from concrete, the concrete was stripped from fixed forms in the casting yard.

3956 members were precast. Using 'Incor' 24-Hour Cement a day's output was based on casting and lifting members from 105 molds of 20 different types. Casting was done during October through December, but in spite of cold weather the units were lifted in 24 hours or less. Molds of 'Incor' concrete, with their tough surfaces, were used 48 times and could have been used indefinitely. 'Incor' 24-Hour Cement resulted in speedy production with maximum economy. Today, 'Incor' concrete is a better buy than ever.

\*Reg. U.S. Pat. Off.

Designed by Bureau of Yards & Docks, U. S. Navy — A. Amirikian, Principal Engineer.  
Commander G. C. Emory, Officer in charge of construction and Lieut.-Commander Blanton Clement (CEC) USNR, Resident Officer, Mechanicsburg, Pa. Corbetta Construction Co., New York, General Contractor. Fred D. Foss, Gen. Superintendent.



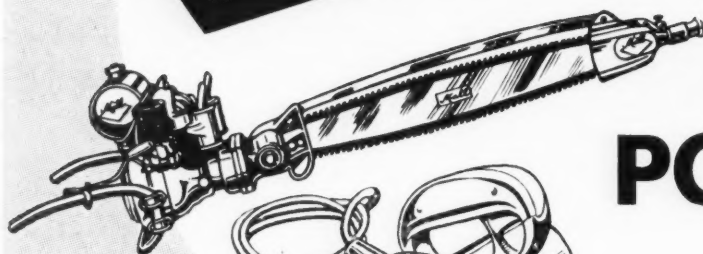
## LONE STAR CEMENT CORPORATION

Offices: ALBANY • BETHLEHEM, PA. • BIRMINGHAM • BOSTON • CHICAGO • DALLAS • HOUSTON • INDIANAPOLIS • JACKSON, MISS. • KANSAS CITY, MO. • NEW ORLEANS • NEW YORK • NORFOLK • PHILADELPHIA • ST. LOUIS • WASHINGTON, D. C.

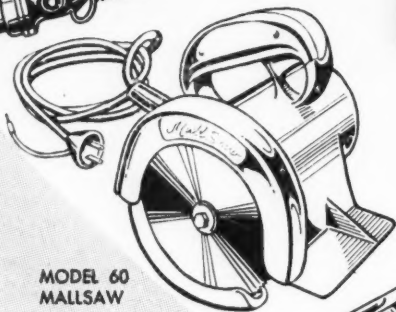
LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 15 MODERN MILLS, 25,300,000 BARRELS ANNUAL CAPACITY

# SHORT on TIME LABOR and MATERIAL?

use **Mall**  
REG. U.S. PAT. OFF.  
**PORTABLE  
POWER TOOLS**

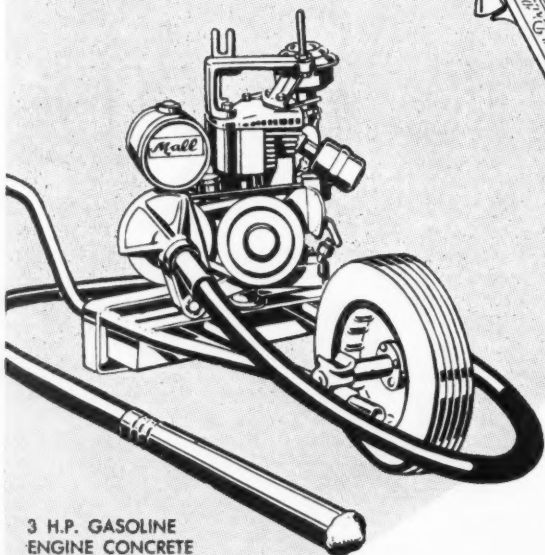
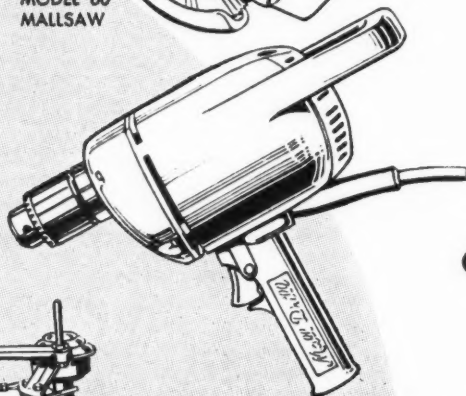


MALL  
GASOLINE ENGINE  
CHAIN SAW



MODEL 60  
MALLSAW

MODEL 125  
1/2 INCH MALLDRILL



3 H.P. GASOLINE  
ENGINE CONCRETE  
VIBRATOR

PORTABLE GASOLINE  
ENGINE, PNEUMATIC  
and ELECTRIC  
CHAIN SAWS

PORTABLE ELECTRIC  
and PNEUMATIC  
CIRCULAR SAWS

PORTABLE ELECTRIC  
DRILLS

GASOLINE ENGINE  
AIR and ELECTRIC  
CONCRETE VIBRATORS

Build more in less time at less cost with Mall Portable Power Tools. They relieve shortages in time, labor and material—keep construction on schedule—and put building on a more profitable basis. Their speed and ease of operation increase the capacity of every worker. Their power-packed efficiency reduces waste and allows a more economical use of scarce materials.

**MALLDRILLS**—speed form construction and all other drilling jobs in metal or wood. 1/4" (2 speeds), 3/8", 1/2", and 3/4" capacities for 110-volt AC-DC or 220-volt AC-DC.

**MALLSAWS**—fast, accurate and easy to handle... facilitate multiple cutting of like members. 2", 2 1/4", 2 1/2" and 4 1/2" cutting capacities available for 110-volt AC-DC or 220-volt AC-DC.

**MALL CHAIN SAWS**—cut trees—heavy pilings—rough timber... Pneumatic unit can be used under water. Gasoline Engine, Pneumatic and Electric models available in many capacities.

**MALL CONCRETE VIBRATORS**—place more concrete per day than any other vibrator of same size. There is a size and type for every job—powered by Gasoline Engine, Electric or Pneumatic Units. Gasoline engine vibrator operates 8 other construction tools.

**MALL TOOL COMPANY**

7757 South Chicago Avenue

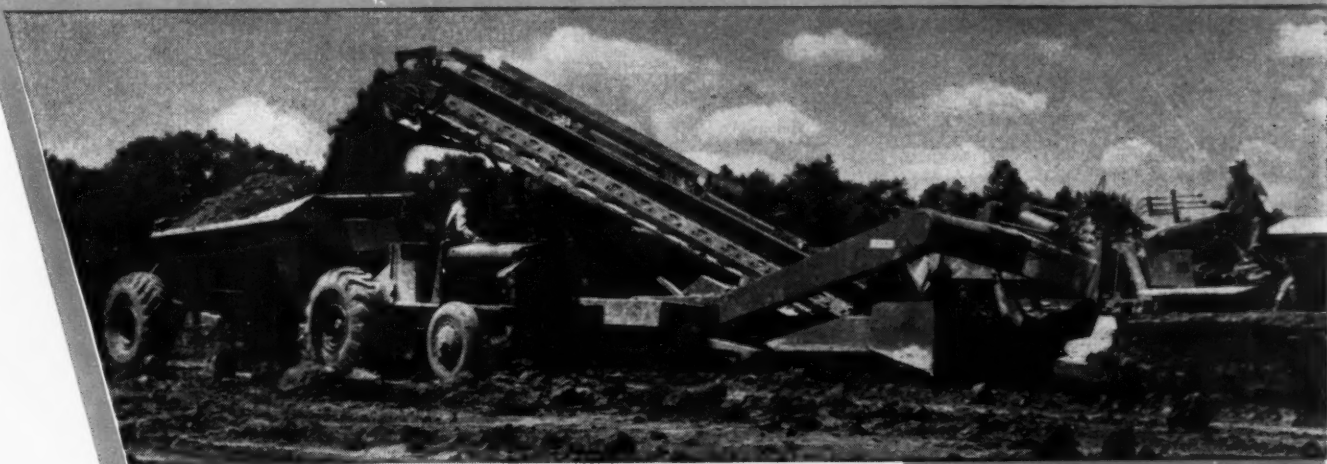
Chicago 19, Illinois

25 YEARS OF  
BETTER TOOLS  
FOR BETTER WORK

**Mall**  
REG. U.S. PAT. OFF.

**PORTABLE  
POWER TOOLS**





# A HEAPING LOAD *Every* 30 SECONDS



● On this 300-acre reservoir job at Lima, Ohio, A. J. Baltes, Inc., used a Euclid Loader and Bottom-Dump Euclids in moving most of the 1,200,000 cu. yds. from the reservoir site. This excavation went into the earth dam, varying from 15 to 40 feet high, around the perimeter of the reservoir.

TOP—Three hydraulic control levers within convenient reach of operator provide coordinated control of crawler tractor and Loader.

ABOVE—Loaded Bottom-Dump Euclid on ramp approaching fill.

BELOW—Loader easily handled heavy, wet material. Soil weighed about 2,800 lbs. per cu. yd.



The Euclid Loader delivered payloads of 12 bank yards of heavy, wet soil in an average of only 30 seconds, in a travel distance of 62 feet. Bottom-Dump Euclids carrying the material to the fill averaged 5.6 m.p.h., at time of observation, despite soft areas caused by heavy rain. The fast dumping and quick turning of Euclids saved time in returning to the Loader.

Euclid Loader and Bottom-Dump fleet kept going day after day under varying operating conditions. This dependable performance reaffirmed the contractor's confidence in "Eucs"—for he has been using Euclid equipment for nine years.

Your Euclid Distributor will be glad to discuss your requirements and supply helpful information.

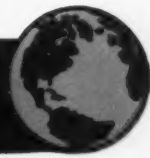
The EUCLID ROAD MACHINERY Co., Cleveland 17, Ohio



# EUCLIDS



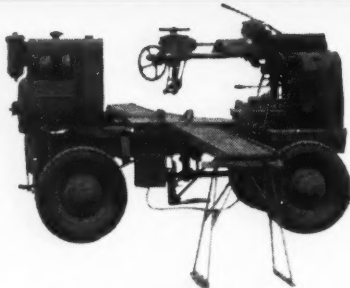
*Move the Earth*



# idle crawlers earn no money



...here's the way to whip them back in service  
*with amazing savings in time and labor!*



## MR. CONTRACTOR . . .

Your dealer probably has Rodgers Track Servicing Presses in his service department for the purpose of helping you maintain your equipment. If he hasn't and your requirements won't justify your having a Rodgers Press of your own, urge him to investigate the savings of a Rodgers. It will pay you both!

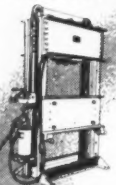
## Rodgers crawler track Presses

IT'S A WASTE OF TIME to lay up crawler-tractors a couple of days for routine track maintenance—it's unnecessary to slug the pins and tug or burn stubborn nuts. A Rodgers Track Press does the track service job . . . so easily . . . so fast. It takes just an average 3 or 4 hours machine time to service two large strings of track—and you can do it on the job with a *Portable Rodgers*.

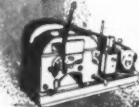
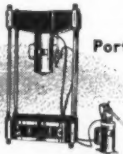
An exclusive Rodgers feature is the Retractable Jaw which eliminates lifting the track over a stationary jaw and assures proper bearing support against the inner side of the rail, thus properly spacing the rails, eliminating any binding action—leaves tracks flexible after servicing. The Rodgers Track Wrench is the handy answer to tight, frozen nuts.

You can get a Rodgers Crawler-Track Press in portable models: 2 wheel trailer or 4 wheels; and in stationary shop models. *Write now* for complete details; or see your crawler equipment dealer—he will tell you what a Rodgers can do to save you time and labor.

Shop Presses



Portable Presses



Power Units



Crawler-Track Presses

# Rodgers Hydraulic, Inc.

hydraulic power equipment

7403 Walker St., St. Louis Park, Minneapolis 16, Minn.







## Built-in bruise resistance adds longer life to these super-traction tires

**H**ERE'S a story that may help you cut down tire bruises and blow-outs. It can also help you with other tire problems—the kind that come from equipment miring down in soft dirt, sand, etc.

It began when B. F. Goodrich engineers made special studies of those problems. They wanted to find new ways to protect big, costly tires against cuts and impacts from sharp rocks—the kind of shocking impacts that cause bruises, ply separation, and blow-outs.

They found the answer when they developed a new construction principle—the Shock Shield—built it into a new kind of tire called the Super Traction (shown above).

This tire has an enlarged tread contact area which gives maximum flota-

tion. The tire stays on top instead of digging in. Loads practically float over soft dirt, yet the self-cleaning tread gives extra traction.

The job of protecting against impact bruises is done by the B. F. Goodrich Shock Shield. This shield is a set of four breakers—layers of rubber-coated rayon cords—built in between the tread and the plies. The breakers are in pairs, with the cords in each pair running parallel to each other, but with each pair running in opposite directions to give balanced strength. The breakers are cushioned with thick layers of shock-resistant rubber.

Under impact, the cords in the breakers stretch together, *not* across each other, and return to their original position. The blow is distributed and absorbed by the rubber

cushions. Any shock passed on to the cord body is greatly reduced.

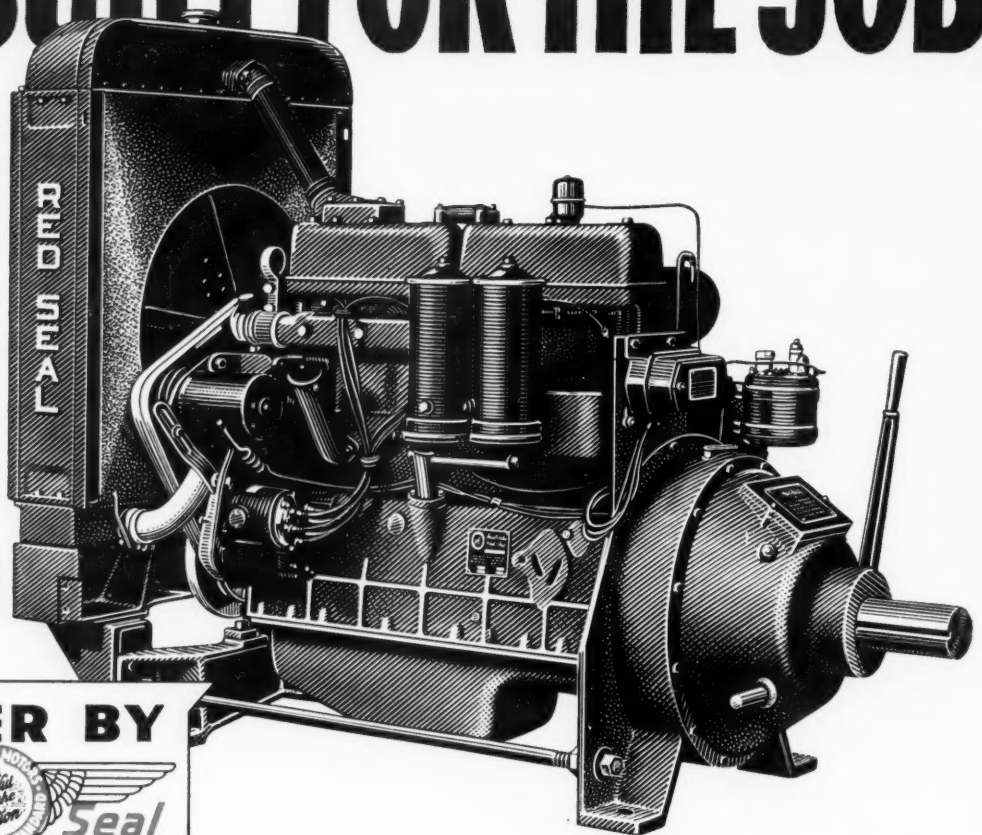
Contractors using the Super Traction and other B. F. Goodrich tires built this way report substantial savings in operating costs. Tire life is longer—sometimes nearly tripled. Traction is better. Repair bills are lower. Delays are reduced. Find out how these tires can make similar savings for *you*. See the B. F. Goodrich dealer, or write us direct. *The B. F. Goodrich Company, Akron, Ohio.*

*Truck Tires* **BY**

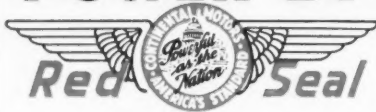
**B. F. Goodrich**



# CONTINENTAL ENGINES ARE BUILT FOR THE JOB!



**POWER BY**



**Engines  
CONTINENTAL**

There are up to 21 different Red Seal models to choose from—not just a single engine—at each power level in the 10 to 180 h.p. range spanned by the Red Seal line. You can choose an engine for any industrial application within these limits without compromise at any point. You can give due consideration not only to power but to all the other factors involved. At each power level, you'll find a model with performance characteristics closely geared to your specific needs, whatever they may be. Varying weights and profiles at each point in the power range assure a model suited to your over-all design. Finally, models in each series are available for operation not only on gasoline, but on fuel and Diesel oils, natural gas and butane.

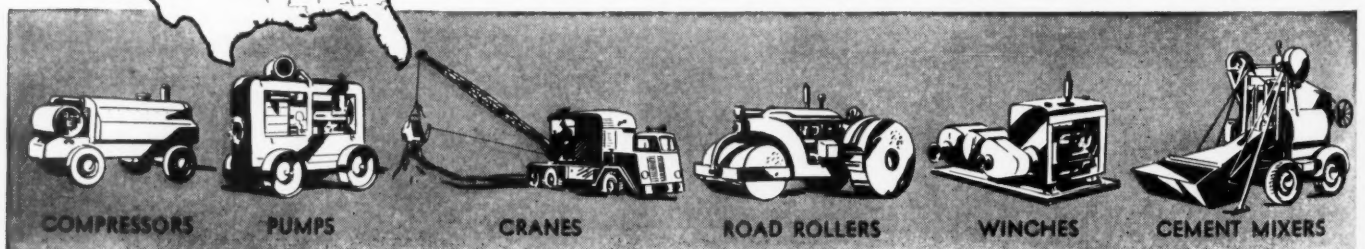
This completeness of line combines with traditional Red Seal quality—with a record of honest building stretching back more than four decades—to back your choice of Continental Red Seal, the engine *built for the job*.



***Continental Motors Corporation***

MUSKEGON, MICHIGAN

44 YEARS' SPECIALIZED EXPERIENCE BUILDING ENGINES FOR TRANSPORTATION, INDUSTRY, AVIATION AND THE FARM



# 68 orders

Represent a Lot of Satisfaction

Here is a contractor who with his associates is known the Country over. Their jobs have been big ones—sometimes critical ones. They had to have equipment they could depend on. They could have bought other equipment but they elected to buy Northwests.

There can be only one reason why one out of every three Northwests is a repeat order—why outfits like Walsh Construction Co. and their associates buy Northwests over and over again. That reason is *successful performance*, the kind of performance that makes money, the kind of performance you would like to have

You are planning for the big construction years that are ahead—with an eye to the type and make of equipment that is going to make money for you. Now is the time to go into the matter of why Northwest owners become staunch Northwest Boosters. Check into it! Let us send you complete details. Follow the Northwest Crowd.

**NORTHWEST ENGINEERING  
COMPANY**

1728 Steger Building  
28 East Jackson Blvd.  
Chicago 4, Ill.

68

Northwests  
for  
Walsh  
Construction Co.  
& Associates  
New York, New York

# NORTHWEST

SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

*Follow the  
Northwest crowd!*

If you have  
a **REAL**  
**ROCK SHOVEL**  
you never  
have to  
worry about  
output in  
dirt!



**COST per sq. ft.-per Use**  
**Less Than ONE CENT** 1¢

**ATLAS LABOR-*SAVING* SPEED FORMS**

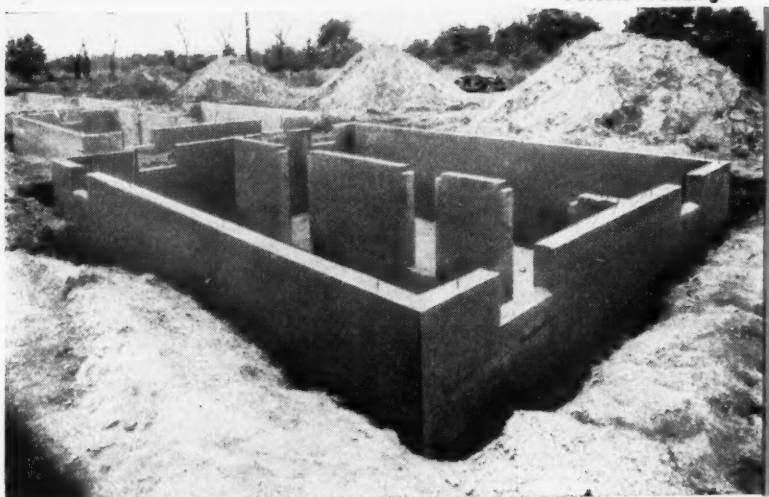
Patents Pending

YES, Atlas Steel Forms Speed up Concrete Construction and do a better job in less time at a lower cost—Less than one cent per sq. ft. per use for forms. Contractors save 25 to 50% over plywood forms.

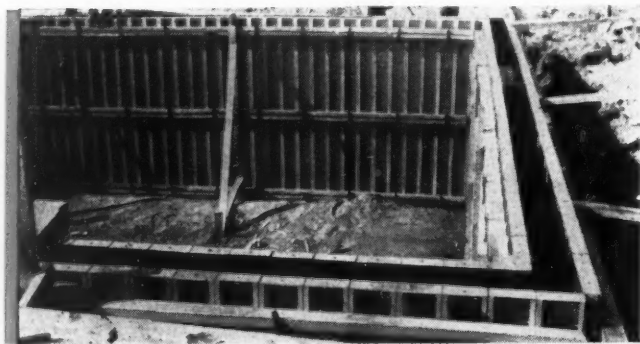
Steel forms are good for indefinite use without repairs. Light weight, anyone can handle them. Easy to set up and strip. Strong—no studs or joists required as with wood forms.

Write for Illustrated Folder and Prices.

**FOR RENT OR SALE**



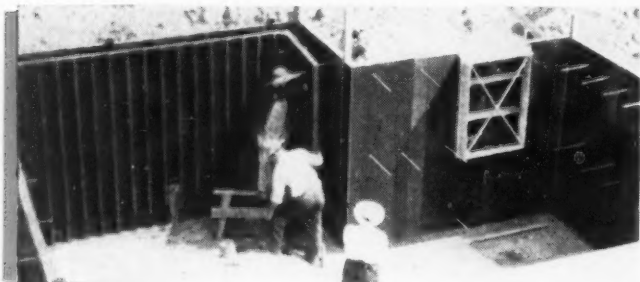
House Foundation with dividing wall. General Constructions Company, Columbus, Ohio, contractors. Over 20,000 homes are now under construction with Atlas Steel Forms



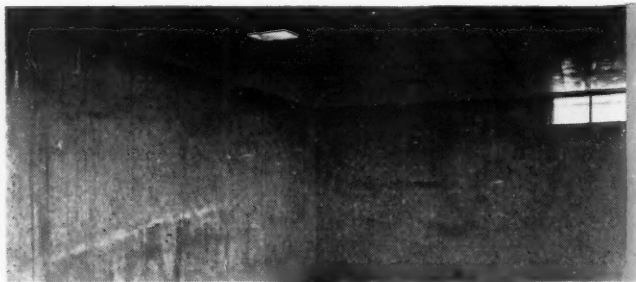
Steel Forms line up straight and true—Easy to set up, strip and move.



Interchangeable forms can be used for floors or walls.



Adjustable—Inserts of any kind are accommodated accurately and easily.



Interior view shows the smooth finish—no grain marks. Nothing to remove.

**IRVINGTON FORM & TANK CORPORATION**

IRVINGTON 19, NEW YORK

NEW YORK SALES OFFICE — 43 CEDAR STREET

Write Dept. MC

Telephone BOWling Green 9-4030

**Atlas Labor-Saving Concrete Forms for every Purpose**





## Red Lead "PASSIVATES" METAL Stifles Rust

Proven performance through the years won for Red Lead its wide acceptance by industry as the standard paint for protecting metal.

But it remained for modern research to show the reasons *why* Red Lead is such an effective guardian against rust. One of the most important of these is Red Lead's ability to keep iron and steel in a "passive" state, in which rusting activity is reduced to a minimum.

As is well known, bare, unprotected steel exposed to moisture rapidly rusts.

However, the same steel protected by Red Lead remains in a "passivated" or rust-inhibited condition.

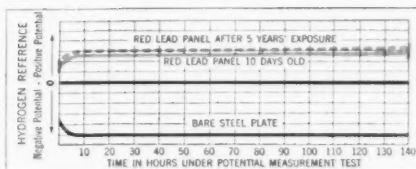
This non-corroding state of Red-Leaded steel, as compared with unprotected steel, can be measured electrically. See accompanying graph.

It is worth noting that, even after five years' exposure, the "passivating" power of Red Lead is still retained. No wonder, then, that Red Lead is considered the foremost paint for making metal *last*.

### Specify RED LEAD for All Metal Protective Paints

The value of Red Lead as a rust preventive is most fully realized in a paint where it is the only pigment used. However, its rust-resistant properties are so pronounced that it also improves any multiple pigment paint. No matter what price you pay, you'll get a better metal paint if it contains Red Lead.

Write for New Booklet—"Red Lead in Corrosion Resistant Paints" is an up-to-date, authoritative guide for those responsible for specifying and formulating paint for structural iron and steel.



### Scientific Proof of Red Lead's Protective Effect

In this test, a piece of unpainted steel was immersed in water. Iron, going into solution, reacted with oxygen in the water to form rust. This unrestrained corroding state is indicated by a rapidly developed and maintained negative potential relative to hydrogen (see above graph).

However, when steel panels painted with Red Lead were immersed under the same conditions, iron and lead salts formed directly next to the metal. This action at once stifled corrosion by preventing the iron from going into solution, thus keeping the steel surface passive. The result is shown in the graph curves above, where a quickly rising positive potential remains constant throughout the test.

It describes in detail the scientific reasons why Red Lead gives superior protection. It also includes typical specification formulas... ranging from Red Lead-Linseed Oil paints to Red Lead-Mixed Pigment-Varnish types. If you haven't received your copy, address nearest branch listed below.

\* \* \*

The benefit of our extensive experience with Red Lead paints for both underwater and atmospheric use is available through our technical staff.

**NATIONAL LEAD COMPANY:** New York 6; Buffalo 3; Chicago 80; Cincinnati 3; Cleveland 13; St. Louis 1; San Francisco 10; Boston 6, (National Lead Co. of Mass.); Philadelphia 7, (John T. Lewis & Bros. Co.); Pittsburgh 30, (National Lead Co. of Pa.); Charleston 25, W. Va. (Evans Lead Division).



**Dutch Boy**  
Reg. U. S. Pat. Off.  
**Red Lead**

# THE 4<sup>th</sup> MORETRENCH WELLPOINT SYSTEM...



... for  
**GUST K. NEWBERG CONSTRUCTION COMPANY**  
 CHICAGO, ILL.

*Laboratory Foundation—Whiting, Indiana*

• Again, This Experienced Contractor  
 Makes Sure That His Wet Work Goes  
 Ahead, According to Schedule...

**IN THE DRY!**

Repeat orders make up the bulk of  
 our business.

Figure it out for yourself... or ask  
 the MORETRENCH customer!

Send for 100 page catalog with  
 engineering and construction data.

**MORETRENCH CORPORATION**

90 West St.  
 New York 6

3037 S. Christiana Ave.  
 Chicago 23, Illinois

2424 Chicago Ave.  
 Tampa 6, Florida

315 W. 25th St.  
 Houston 8, Texas

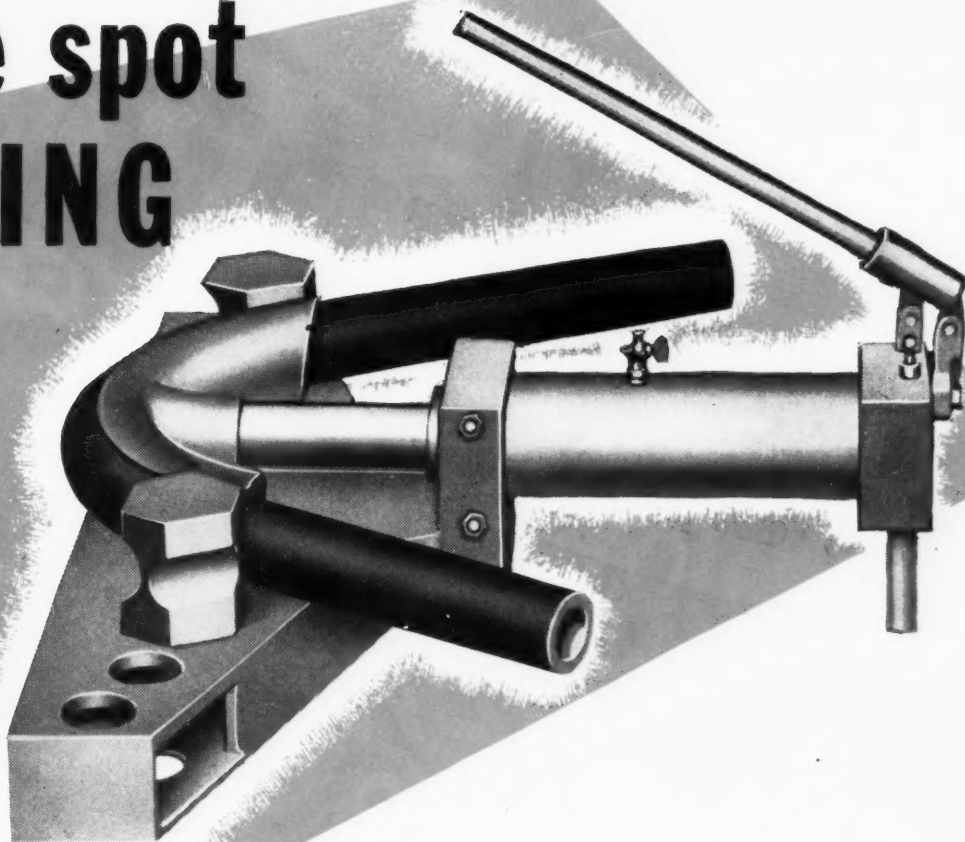
Rockaway  
 New Jersey

# on the spot BENDING

**COLD**

**QUICK**

**ACCURATE**



## WITH THE W-S PORTABLE PIPE BENDER

THE Watson-Stillman Portable Hydraulic Pipe Bender will bend pipe or tubing up to 3 inches cold and right on the spot where it is needed.

Its open jaw construction permits the pipe to be inserted without removing bending dies or former. The work is in full view during the bending operation and the degree of bend can be checked at any point

without removing pipe from the bender.

The bender is ruggedly constructed of forged steel, and the pump cylinder is made from seamless steel tube. It will bend all standard, extra strong and double extra strong steel pipe from  $\frac{3}{8}$ " to 2" as well as standard weight pipe in  $2\frac{1}{2}$ " and 3" sizes. Bending dies are supplied for each size of pipe.

WATSON-STILLMAN CO. • Distributor Products Div. • ROSELLE, NEW JERSEY

Sold only through distributors

Designers and Manufacturers of Forged Steel Fittings, Valves, Wire Rope Shears, Hand Pumps, Jacks, Pipe Benders and Hydraulic Equipment



**WATSON-  
STILLMAN**  
DISTRIBUTOR PRODUCTS DIVISION

1023



# IT'S HERE!...

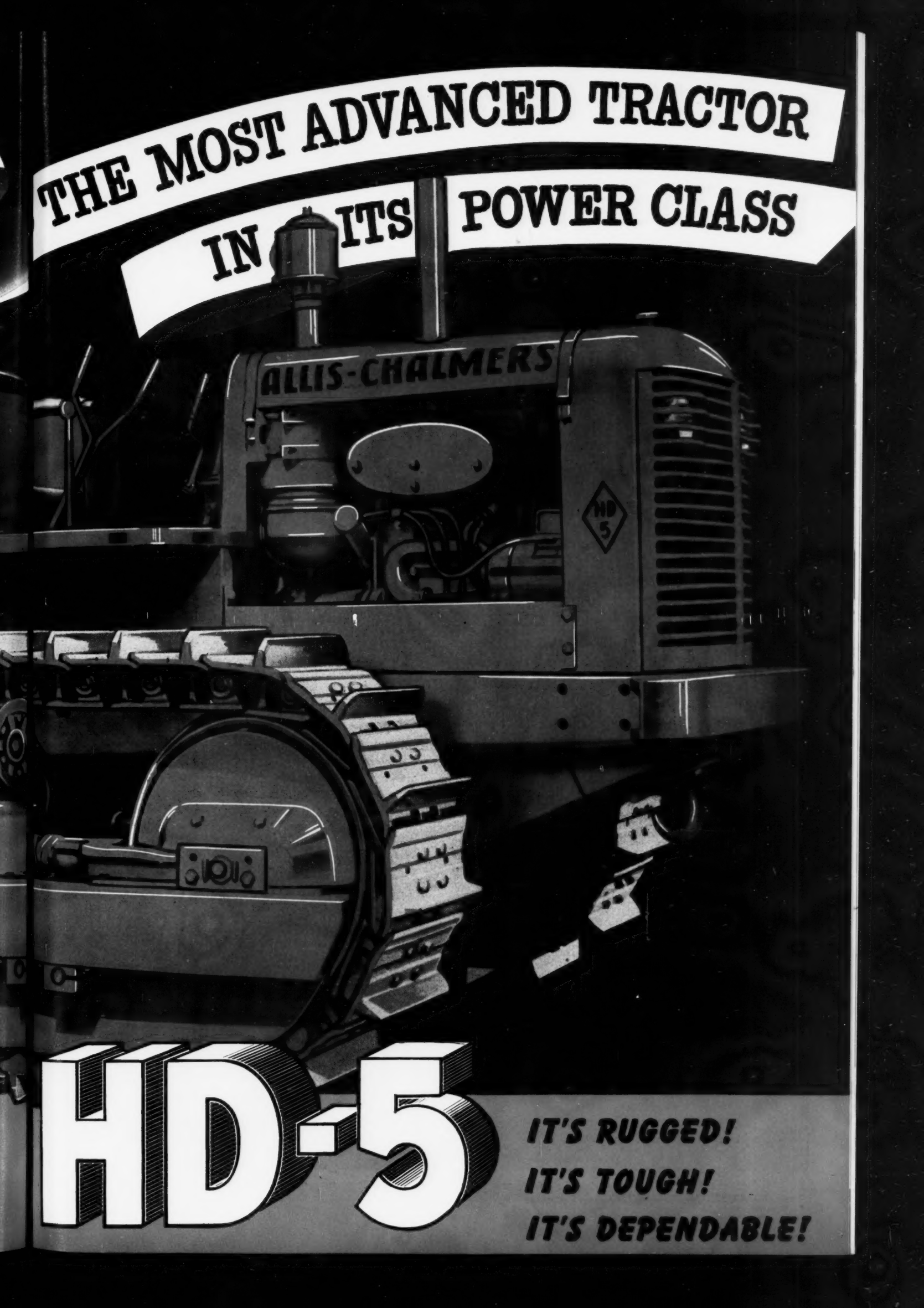
## NOW!...A *NEW* SMALLER TRACTOR with BIG TRACTOR DESIGN, BALANCE AND STAMINA

- Engineered Completely New Throughout
- 37.4 Drawbar hp.
- Five Speeds—1.46 to 5.47 m.p.h.
- Weight: 44-inch Tread 10,750 lbs.  
60-inch Tread 11,250 lbs.
- 1,000 Hour Lubrication — Truck Wheels, Idlers, Support Rollers
- 2-Cycle Diesel Power
- Full Visibility; Comfortable Seat; Readily Accessible Controls
- Simplified Maintenance
- More Traction, More Ground Contact, Better Balance



# ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U.S.A.



**THE MOST ADVANCED TRACTOR  
IN ITS POWER CLASS**

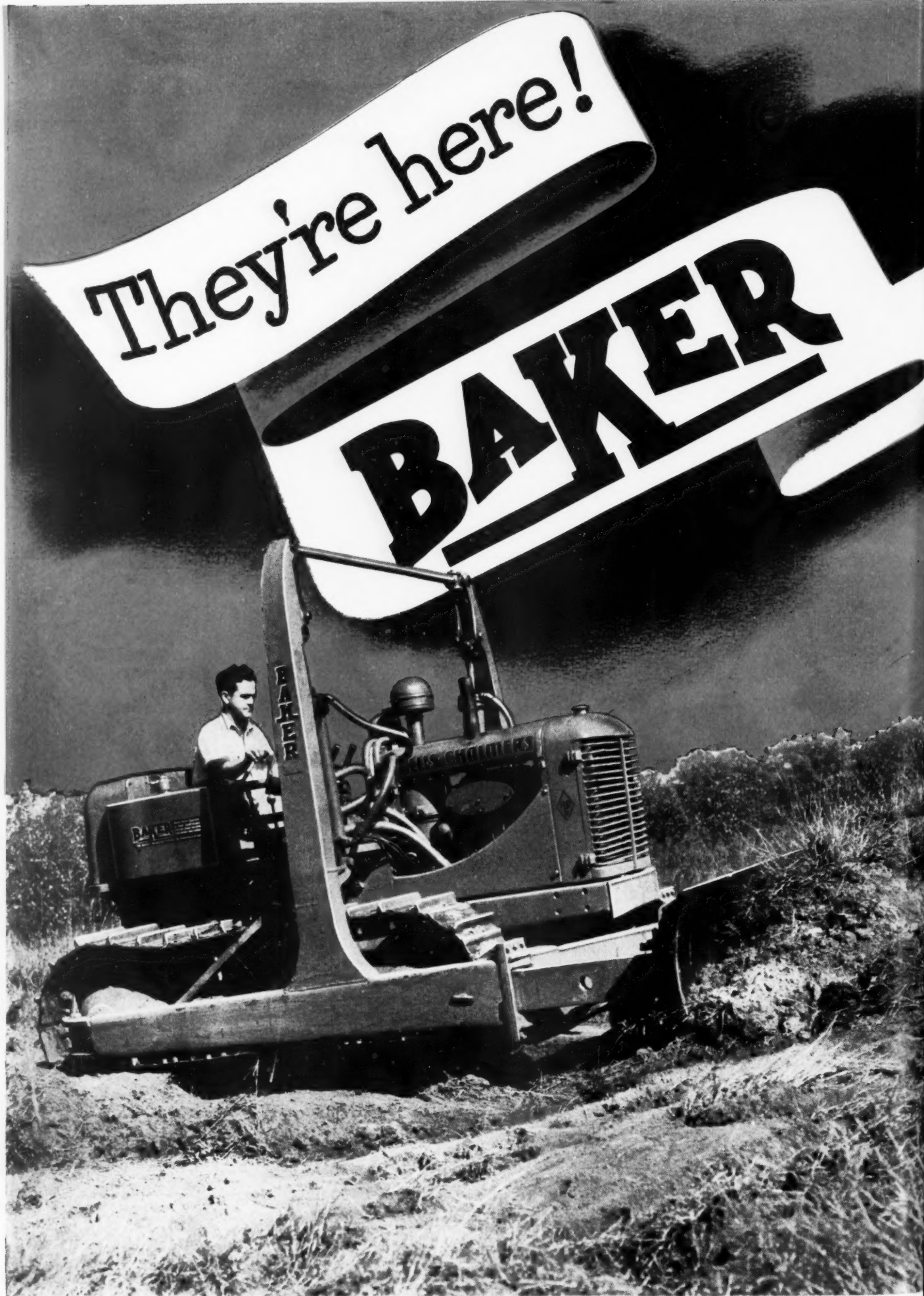
**ALLIS-CHALMERS**

**HD  
5**

**HD-5**

**IT'S RUGGED!  
IT'S TOUGH!  
IT'S DEPENDABLE!**







# bulldozers · gradebuilders

for the NEW ALLIS-CHALMERS

# HD-5

THEY GO TOGETHER — Baker bulldozers and the sensational new Allis-Chalmers HD-5—because *they're built together!* Starting from tractor blueprints Baker 'dozers were designed into the HD-5, to match tractor power, size and speed — built to maintain tractor balance, stability and traction — mounted to save tractor wear, tear and maintenance.

Men who know earthmoving equipment will recognize and appreciate the extra values, the extra features

built into every Baker — direct down pressure; fast, sensitive blade control; low pressure hydraulic system; sturdy construction; rolling blade action; less linkage; simplicity of design and construction — plus the Allis-Chalmers-Baker co-operative engineering that assures dependable, on-the-job performance.

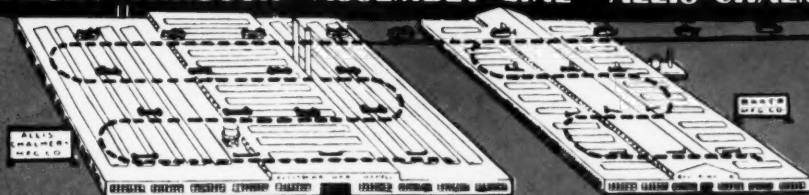
That is why there are more Baker 'dozers mounted on Allis-Chalmers tractors than all other makes combined.

Baker Mfg. Co., Springfield, Illinois



# BAKER

**"STRAIGHT THROUGH" ASSEMBLY LINE — ALLIS-CHALMERS TO BAKER TO YOU!**



The modern Baker plant with its completely equipped fabricating, machining and blacksmithing shops adjoins the Allis-Chalmers crawler tractor plant. When you order an A-C tractor with Baker bulldozer or gradebuilder, your tractor leaves the A-C assembly line, crosses a narrow court and goes on the Baker final assembly line.



# UNIT 357

## MOBILE CRANE



- *It's Self Propelled*
- *It Rides on Rubber*
- *It Has 1001 Uses!*

Fast, versatile industrial crane with plenty of LIFT ability . . . ideal for moving castings, steel, scrap, coal, lumber or even machine tools. Travels anywhere . . . on paved surfaces, cinders or just plain mud . . . gets there in a hurry. Available with crane hook, clamshell, or magnet . . . quickly convertible to any other attachment. Operated by ONE man . . . powered by ONE engine . . . controlled from ONE position in cab. Features include: Hydraulic steering . . . Air-actuated hydraulic brakes . . . One piece cast gear case. FULL VISION CAB, pioneered by UNIT, provides 360° visibility for greater safety and efficiency.

**5 Ton Capacity . . . 7 Tons with Outriggers**



**CONTACT  
FACTORY DIRECT  
FOR PRICE AND  
DELIVERY**

**UNIT CRANE & SHOVEL CORP.**



**6305 WEST BURNHAM STREET  
MILWAUKEE 14, WISCONSIN, U. S. A.**





Industry's best  
solution to many  
corrosion problems

## CUSTOM <sup>HOT DIP</sup> Galvanizing

**Plastic Coating  
SOON**

**INDUSTRIAL COATINGS—  
PLASTIC CEMENTS—IMPREGNA-  
TIONS—LAMINATED LININGS—**

To provide more comprehensive corrosion prevention facilities over a broader field of conditions and equipment, we are installing a plastic coating process, which has proven highly efficient in combating corrosion under extreme and widely varying chemical and acid conditions.

Wherever you have steel products or equipment, corrosion is continuously and vigorously attacking . . . shortening their life . . . increasing your maintenance costs.

Nowery J. Smith Company corrosion prevention services and facilities offer you the proven, efficient, economical method of stopping corrosion's heavy toll. An almost unlimited number of your steel products and equipment, in

a wide variety of services, can be Hot-dip Galvanized or Plastic Coated . . . adding years and years of service to their life . . . eliminating high maintenance costs and premature replacements.

If you are a user or manufacturer of steel products or equipment, you are invited to discuss corrosion prevention with our engineers. They will gladly help you determine the most effective corrosion prevention application for your products and equipment. Submit your corrosion problems for analysis . . . no obligation.

*Nowery J. Smith*  
COMPANY

**HOUSTON 8, TEXAS**

**Hempstead Hwy. & Eureka St., P. O. Box 7398**

Extensive facilities for pickling . . . sand blasting . . . paint spraying for special types of coatings  
(Complete export shipping facilities)



# *Always Your*

## **INTERNATIONAL DIESEL CRAWLERS for Dirt Moving**

**W**HERE real dirt-moving records are being made, there's a Diesel crawler tractor doing the heavy work. If it isn't doing the whole job of powering the digging, carrying and spreading, it pushes other rigs through the loading zone to get capacity loads rolling quickly.

Whether hauls are long or short, Diesel Crawlers are in there to make the job move along on schedule. Without them, many a vaunted record would not have materialized.

Because International Diesel Crawlers are geared to the earth with maximum ground contact, their power to push or pull is totally effective, even on soft footing. And because International Diesels have great hang-on, they go through where many another prime mover would stall.

Yes, your best bet is International Diesel Crawlers for all earth-moving

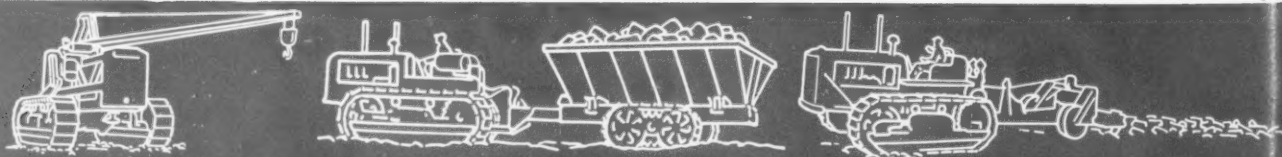
power. Advanced engineering gives them long life, smooth performance, unit construction for easy and time-saving service and a positive instant starting system. Their rugged build assures true alignment of all moving parts and an unusual ability to absorb punishment. Their full-Diesel engines assure matchless operating economy. Their excellent balance and maneuverability give them sure-footed safety and quick response to all performance demands.

Call on the International Industrial Power Distributor near you for facts and figures on International Diesel Tractors, Power Units and matched equipment. He'll be a valuable friend to have when competitive days require closer study of costs and performance.

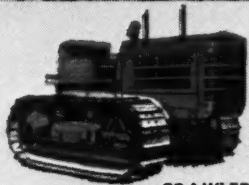
*Industrial Power Division*

**INTERNATIONAL HARVESTER COMPANY**  
180 North Michigan Avenue Chicago 1, Illinois

## **INTERNATIONAL *Industrial Power***



# *Best Bet...*



CRAWLER TRACTORS



POWER UNITS



WHEEL TRACTORS





**A New**  
**HOUGH**  
"HUFF"

ONE YARD

Model 9A  
for INTERNATIONAL  
T9 and TD-9  
**TRACTRAC-TOR**

# Bulldozer-Shovel

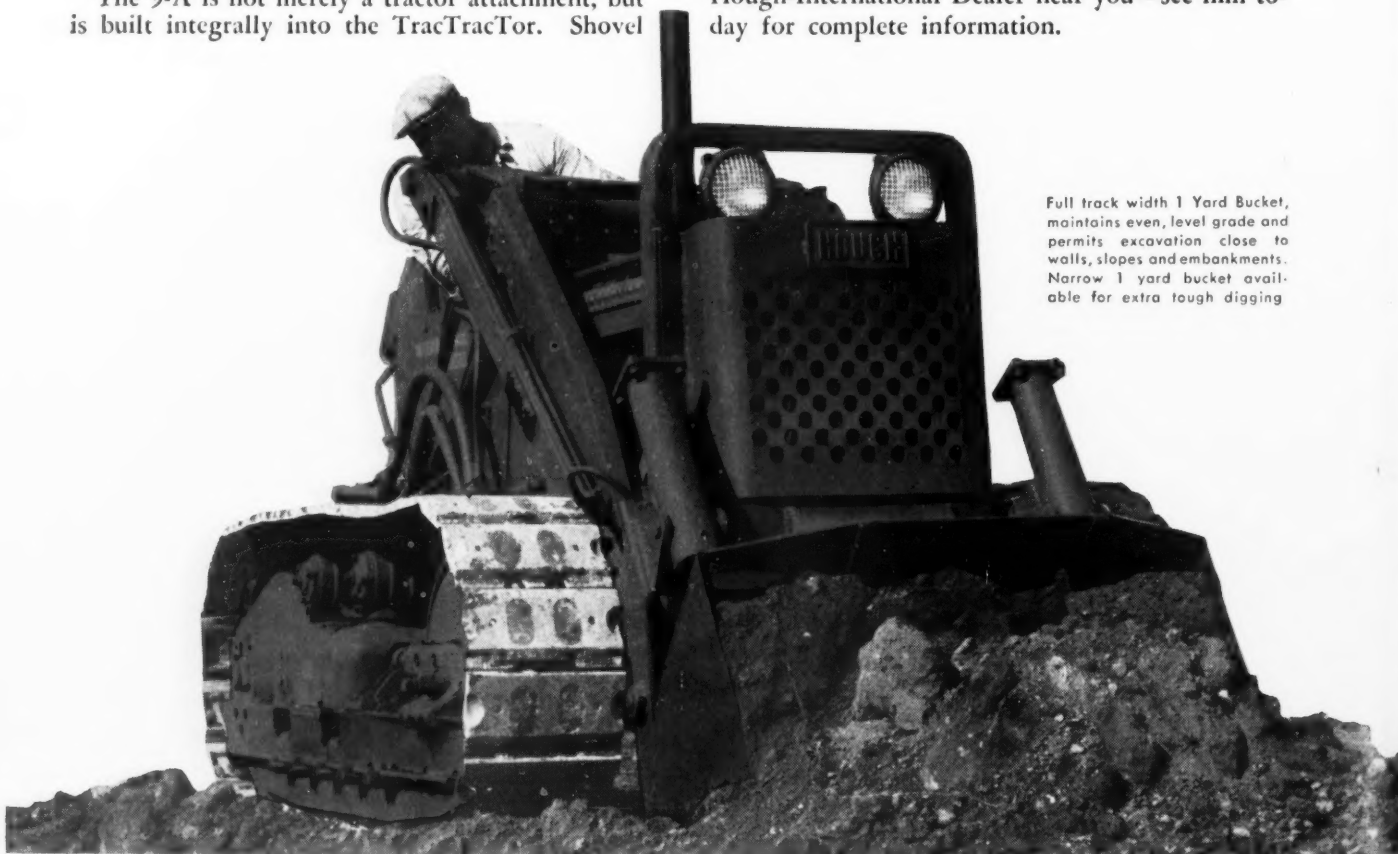
Here is a real DUAL-PURPOSE unit — a rugged, versatile Tractor Shovel — plus a full fledged, powerful Bulldozer — to provide maximum utility at a minimum investment.

The Hough Bulldozer-Shovel has everything you've always needed in a Tractor Shovel—powerful crowding action—complete visibility, low overhead height—hydraulic down pressure—tip back bucket—long, high dumping reach—fast operating cycle, plus the power, speed and traction of the famous International TracTracTor.

The 9-A is not merely a tractor attachment, but is built integrally into the TracTracTor. Shovel

speeds are coordinated with tractor travel speeds—tractor balance and stability are strictly maintained—shovel mounting is easy on the tractor, and bucket capacity matches tractor power.

The Hough Bulldozer-Shovel is backed by over a quarter of a century of Tractor Shovel engineering experience—by the field performance experience of over 5000 units—by the combined resources and experience of The Frank G. Hough Co. and International Harvester. There is a Hough-International Dealer near you—see him today for complete information.



Full track width 1 Yard Bucket, maintains even, level grade and permits excavation close to walls, slopes and embankments. Narrow 1 yard bucket available for extra tough digging



# YEARS ahead in design!

# YARDS ahead in performance!

## CROWDING ACTION

Hydraulic rams and special push arm linkage provide powerful digging, and forward crowding action in digging range, with automatic high speed pick-up in dumping range. Means full capacity bucket loads and faster operating cycle.

## TIP-BACK BUCKET

Bucket tilts back 38° automatically, in carrying position, preventing spillage and assuring full bucket capacity while transporting. Bucket can be carried lower while traveling providing better vision and better balance.

## HYDRAULIC TRIP

Bucket is dumped quickly and cleanly at any height by hydraulic trip, eliminating operator fatigue and increasing yardage output. A single hydraulic lever raises, lowers, holds, or "floats" the Bucket or Bulldozer Blade.

## FULL VISIBILITY

The operator has complete vision—forward, backward, sideways, upward or downward. He can see the tracks and Shovel at all times. No overhead structures, no confining hydraulic rams to obscure vision and retard output. The Model 9-A is simple, safe, dependable.

## OSCILLATING TRACKS

Extra long tracks oscillate freely to conform to ground contour—maintains full track length on ground for better traction and digging power—assures level Bucket or Bulldozer cutting edge regardless of ground contour.

## BETTER BALANCE

Bulldozer-Shovel and Tractor are engineered as a unit, maintaining the same balance, load distribution and side stability possessed by the bare tractor—whether digging, traveling or dumping. Provides better traction, maneuverability and less wear on rollers and front idlers.

## THE FRANK G. HOUGH CO.

LIBERTYVILLE, ILLINOIS

Material Handling Equipment Since 1920

The 9-A equipped with full track width Bulldozer Blade will handle a wide variety of heavy work, consistent with the size of the tractor.




# CONTRACTORS!

**Check** your equipment against this list.

**Get all the benefits to be had  
with Ingersoll-Rand AIR TOOLS.**

There are many operations where only Air Tools can do the job, but there are many, many more where AIR TOOLS are the choice because they are lighter, smaller, more powerful and easier to handle.

Write now for our new 24-page bulletin, "Air Tools for Contractors" illustrating many unusual applications and describing the advantages of Ingersoll-Rand Air Tools.



- Air Motors
- Chippers
- Concrete Vibrators
- Diggers
- Drifters
- Drills
- Drill Steel Cutters
- Grinders
- Hoists
- Jackhamers
- Jackbits
- Jackbit Grinders
- Jackmills
- Impact Wrenches
- Paving Breakers
- Pile Drivers
- Reamers
- Riveters
- Rock Drills
- Saws
- Scalers
- Shank Grinders
- Sharpeners
- Sump Pumps
- Tampers
- Wagon Drills
- Wire Brushes
- Wood-Borers
- Wrenches



*Send for your copy*

## Ingersoll-Rand

11 BROADWAY, NEW YORK 4, N. Y.

8-943

## DISTRIBUTORS

ALABAMA  
Birmingham—YOUNG & VANN SUPPLY CO.

ARIZONA  
Phoenix—MINE & SMELTER EQUIP. CO.

ARKANSAS  
North Little Rock—STANDARD EQUIP. and SUPPLY CO.

CALIFORNIA  
Oakland and Eureka—BURAN EQUIP. CO.  
Los Angeles—GARLINGHOUSE BROTHERS

COLORADO  
Denver—GUNDERSON-KRINGEL CO.

CONNECTICUT  
Stamford—M. F. TAYLOR CO.

FLORIDA  
Jacksonville—FAROUHAN MACHINERY CO.  
Miami—GENERAL EQUIP. & SUPPLY CO.  
Tampa—EPPERSON & CO.

GEORGIA  
Atlanta—GILL EQUIPMENT CO.

ILLINOIS  
Chicago—CENTRAL CONTRACTORS SERVICE  
Rock Island—WESTERN EQUIP. & SUPPLY CO.

INDIANA  
Indianapolis—BOCK EQUIPMENT CO.  
Nashville—DEEDS EQUIPMENT CO.

IOWA  
Cedar Rapids and Des Moines—GLOBE MACHINERY & SUPPLY CO.

KENTUCKY  
Louisville—NATIONAL EQUIPMENT CO.  
Paducah—HENRY A. PETTER SUPPLY CO.

LOUISIANA  
Baton Rouge, Monroe and New Orleans—DUNHAM-PUGH CO., INC.

MAINE  
Portland—EASTERN TRACTOR & EQUIP. CO.  
Presque Isle—ROY C. THOMPSON CO.

MARYLAND  
Baltimore—MARYLAND SUPPLY & EQUIP. CO.

MASSACHUSETTS  
Boston—PERRIN, SEAMANS & CO., INC.

MICHIGAN  
Detroit—W. H. ANDERSON COMPANY, INC.  
Grand Rapids—E. K. S. EQUIPMENT CO.  
Marquette—MARQUETTE PUBLIC SERVICE GARAGE, INC.  
South St. Marie—STRAITS ENGINEERING CO.

MINNESOTA  
St. Paul—BORCHERT-INGERSOLL, INC.

MISSISSIPPI  
Jackson—WATKINS-ALDRIDGE EQUIP. CO., LTD.

MISSOURI  
Kansas City—CONTRACTORS SUPPLY CO.  
St. Louis—MISSOURI-ILLINOIS TRACTOR & EQUIPMENT CO.

MONTANA  
Butte—MONTANA HARDWARE CO.

NEBRASKA  
Omaha—FENRIS TRACTOR & EQUIP. CO.

NEVADA  
Reno—NEVADA TRUCK SALES

NEW JERSEY  
Union—SMITH TRACTOR & EQUIP. CO.

NEW MEXICO  
Albuquerque—HARRY CORNELIUS CO.

NEW YORK  
Albany—VAN HOUHUYTS PUMP & SUPPLY CO.  
Buffalo—WHEELER EQUIPMENT CO.  
New York—H. O. PENN MACHINERY CO.  
Rochester—HAVERSTICK & CO.  
Utica—CREDLE EQUIPMENT CO.

NORTH CAROLINA  
Charlotte—CONTRACTORS SERVICE, INC.

NORTH DAKOTA  
Fargo—MYHRA EQUIPMENT CO.

OHIO  
Cincinnati—THE FINN EQUIPMENT CO.  
Cleveland—PATTERSON EQUIPMENT CO.  
Columbus—BLAKE EQUIPMENT CO.  
Marietta—NORTHWEST SUPPLY & EQUIP. CO.  
Toledo—EDMUND SUPPLY CO.

OKLAHOMA  
Oklahoma City—THE BOARDMAN CO.

OREGON  
Portland—COLUMBIA EQUIPMENT CO.

PENNSYLVANIA  
Philadelphia—METALWELD, INC.  
Pittsburgh—BRINKER SUPPLY CO.

SOUTH CAROLINA  
Columbia—TIDEWATER SUPPLY CO., INC.

TENNESSEE  
Knoxville and Nashville—DEMPSTER BROS.  
Memphis—HOWELL EQUIPMENT CO.

TEXAS  
El Paso—DON A. CARPENTER CO.  
Houston—SOUTH TEXAS EQUIPMENT CO.  
Lubbock—FRED BERRYHILL EQUIP. CO.  
San Antonio—ACME WIRE AND IRON WORKS  
Waco—CONTRACTORS EQUIPMENT SALES & SERVICE, INC.

UTAH  
Salt Lake City—THE LANG CO., INC.

VIRGINIA  
Norfolk and Roanoke—TIDEWATER SUPPLY CO.  
Richmond—INDUSTRIAL SUPPLY CO.

WASHINGTON  
Seattle and Spokane—COLUMBIA EQUIP. CO.

WEST VIRGINIA  
Bluefield—BLUEFIELD SUPPLY CO.  
Charleston—CLYDE W. BECKNER, INC.

WISCONSIN  
Milwaukee—STONE MANUFACTURING CO.

# NOVO NEWS

DECEMBER, 1946

## Contractors Praise Novo Independent Pump Feature

### Self-Priming Centrifugal Pump Proves Its Value

According to contractors, one of the most important of the many features of the "Pronto-Prime"—the new Novo self-priming centrifugal pump—is that pump and engine are separate units. This arrangement permits the use of various types of power and makes it possible to service pump and engine independently. Another advantage—the engine is relieved of end thrust ordinarily imposed by the impeller.

### Field Service Operations Greatly Simplified

On the "Pronto-Prime" vital parts—impeller, wear plate, seal, shaft and bearings—are reached by removing the front cover plate. The recirculating priming valve is accessible through a large cleanout in the lower part of this same plate. Clearance between impeller and wear plate can be checked by removing the hand pump. The cutoff is replaceable and provides a ready means of maintaining clearance at the cut-off point with the periphery of the impeller. The replaceable suction valve is readily accessible.

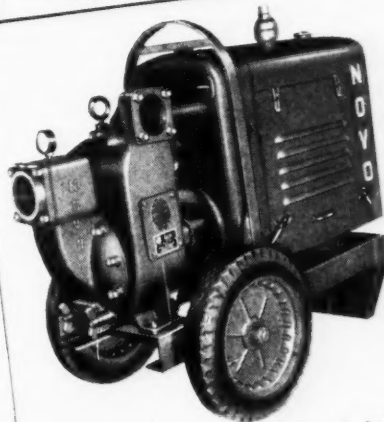
### Complete Line

The "Pronto-Prime" is available in models ranging from 1½ to 8 inches and in capacities from 3,000 to 125,000 gallons per hour.

### Super Speed Priming

Super speed, positive priming is certain on the "Pronto-Prime." The design and location of the priming valve assure delivery of the right amount of priming water at the proper time and place.

### "Pronto-Prime"



The new "Pronto-Prime" was designed to specifications which hundreds of you contractors suggested as necessary to efficient, trouble-free operation.

### Stout-Hearted Seal Is Extra Long-Lived

The long-lived, self-aligning, self-adjusting, rotating Neoprene seal is encased in brass. An external corrosion resistant spring maintains constant and correct pressure between the rotating and stationary steel plates. Oil, instead of grease, assures lubrication at all temperatures.

### Self-Cleaning

Large, streamlined passages permit a natural flow of water to prevent settling and clogging.

### Meets AGC Specifications

"Pronto-Prime" pumps meet AGC standards in all respects.



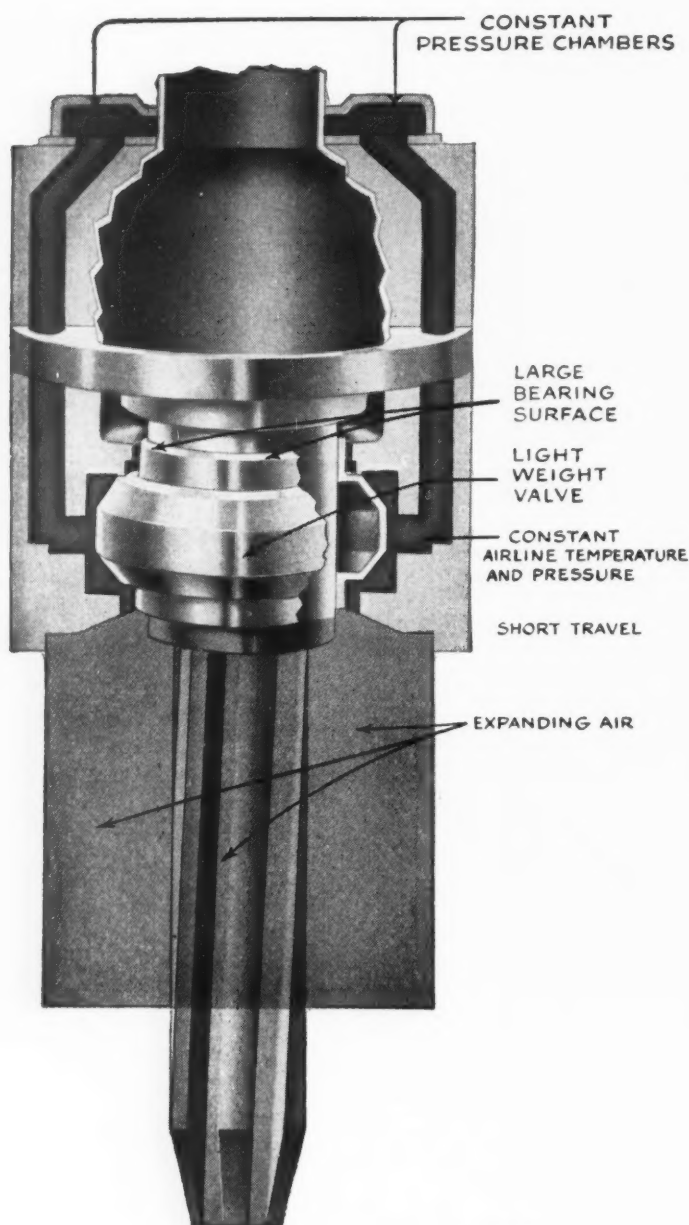
Allied Member of A.E.D.





# WHY LEADING CONTRACTORS SPECIFY *Thor*

## ROCK DRILLS and BREAKERS



The **ENGINEER** *knows* that . . .

*Thor's Light Weight, Short-Travel Valve  
Produces More Work—Cuts Operating Costs!*

The Valve is to an air tool what the carburetor is to an automobile engine . . . the *vital heart* controlling the inlet of power. So intricate is the valve, however, that only engineers who know its function recognize what benefits it can contribute to an air tool's performance and service life.

Leading engineers everywhere specify Thor Tools because Thor valves provide *faster, better work—at lower operating costs—* through these features:

**SPEED . . . Air Economy.** Extremely light in weight, the Thor Valve moves faster to provide more blows per minute. It maintains this relative high efficiency even at low air line pressures.

**POSITIVE ACTION.** Light weight, short-travel—and the important fact that the Thor Valve is actuated by the difference between air line pressure and exhaust pressure—assures positive action that *completes every blow.*

**ENDLESS LIFE.** Light weight and short-travel—plus the *large bearing surface* on which the Thor Valve operates—eliminates breakage . . . reduces wear to a minimum.

**NON-FREEZING . . . Never "Air-starved."** Constant pressure chamber maintains air at constant line temperature and pressure. Air cannot expand until it passes valve . . . thus valve cannot "freeze."

**EXACT TIMING and BALANCE.** All these valve functions are in perfect-timing and balance with the piston hammer. Every stroke is air-cushioned; every blow is complete and powerful.

Have your engineer check these Thor advantages. He'll agree—your nearby Thor Distributor stocks the tools that will give you more work . . . at lowest cost!

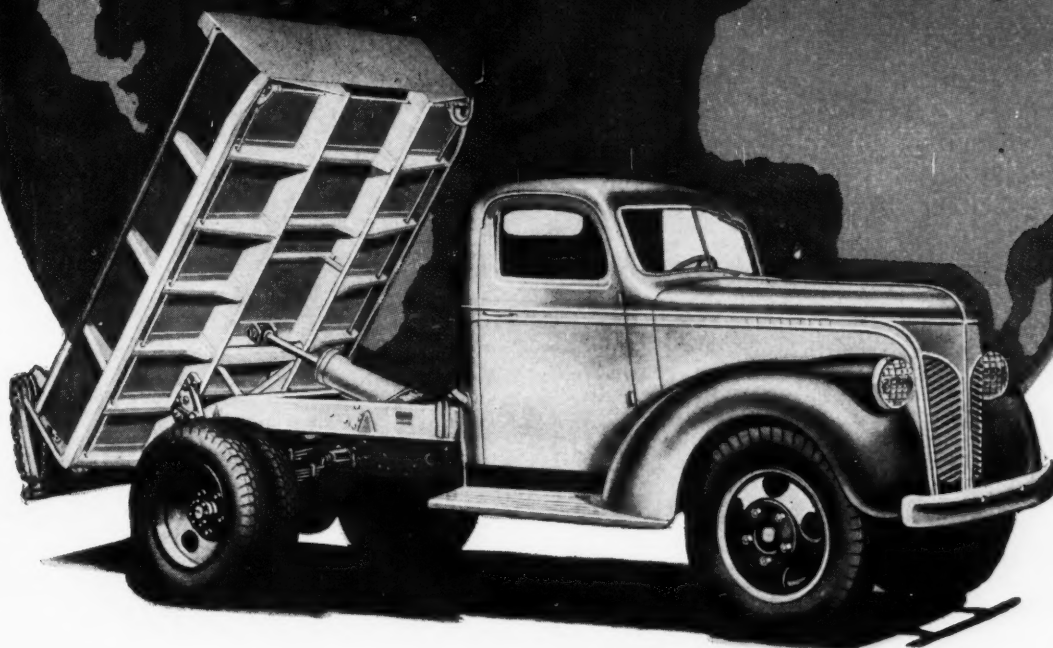
**INDEPENDENT PNEUMATIC TOOL COMPANY**  
600 W. Jackson Boulevard, Chicago 6, Illinois  
BIRMINGHAM BOSTON BUFFALO CLEVELAND DETROIT LOS ANGELES MILWAUKEE NEW YORK PHILADELPHIA  
PITTSBURGH ST. LOUIS SALT LAKE CITY SAN FRANCISCO TORONTO, CANADA LONDON, ENGLAND

*Thor* . . . **PORTABLE POWER**  
**TOOLS**

PNEUMATIC TOOLS • UNIVERSAL AND HIGH FREQUENCY ELECTRIC TOOLS • MINING AND CONTRACTORS TOOLS

**IN USE EVERYWHERE**

*They've* *Good!*



From one end of the world to the other, you'll find Gar Wood Hoists and Dump Bodies in action. The reason? They're designed, engineered, and built to do specific jobs, *no matter how tough*. Hydraulically operated, with simple controls...they dump *cleanly, quickly, and easily*...make it possible to get to the next job *taster*.

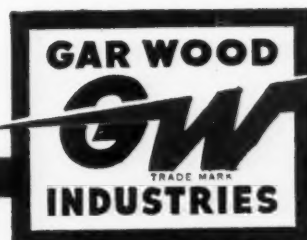
No matter what kind of material you work with... sand, gravel, rock, coal, or construction materials... there's a Gar Wood Hoist and Dump Body to make the job easier...help you make money, faster.

Gar Wood Hoists and Dump Bodies have been, and are constantly being proven all over the world on the toughest jobs. For your next job, specify Gar Wood.

**ROAD MACHINERY**

**HEATING UNITS • MOTOR BOATS**

**WINCHES AND CRANES**





# LOWER MAINTENANCE

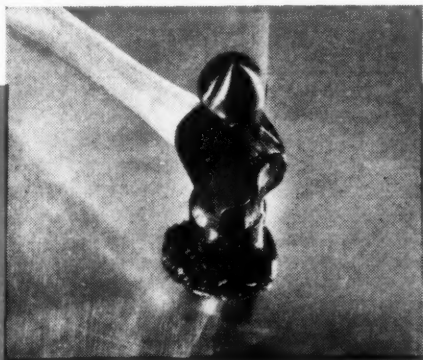


Tune in . . .  
TEXACO STAR THEATRE  
presents the NEW  
EDDIE BRACKEN SHOW  
every Sunday night.  
Metropolitan Opera  
broadcast every  
Saturday afternoon.



# TEXACO

# COSTS ASSURED



"Hammer Test" proves Marfak protects parts longer.

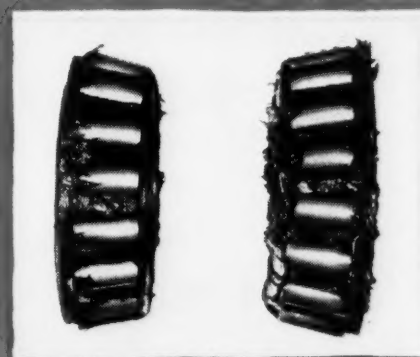


"Stretch Test" proves Marfak seals out dirt and moisture.

USE A LUBRICANT THAT PROTECTS CHASSIS LONGER — TEXACO MARFAK. The pictures tell why *Marfak* protection lasts longer. *Marfak* won't splatter under the heaviest blows of a hammer — won't squeeze or jar out of bearings under hammering road shocks, either. It cushions the parts, adds miles to their life.

And see how *Marfak* s-t-r-e-t-c-h-e-s. Ordinary grease won't do that. But *Marfak* is cohesive. It holds together. That means it seals out dirt and moisture — protects chassis parts for extra thousands of miles.

USE A LUBRICANT THAT ADDS LIFE TO WHEEL BEARINGS — TEXACO MARFAK HEAVY DUTY. Despite heavy loads and high speeds, *Marfak Heavy Duty* stays in the bearings. It provides fluid lubrication inside, but retains its original consistency at the edges — thus sealing out dirt and moisture, sealing itself in, assuring safer braking. No seasonal change is required.



*Marfak Heavy Duty* makes wheel bearings last longer.

**More than 250 million pounds of Marfak have been used!**

For Texaco Products and Lubrication Engineering Service, call the nearest of the more than 2300 Texaco distributing plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

## Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT



# Terra Cobra moves mountains with the aid of *Enginairing*

When you see the rich array of modern features offered by the Wooldridge "Terra-Cobra" Scrapers, you naturally look for something special in the controls . . . and you find it!

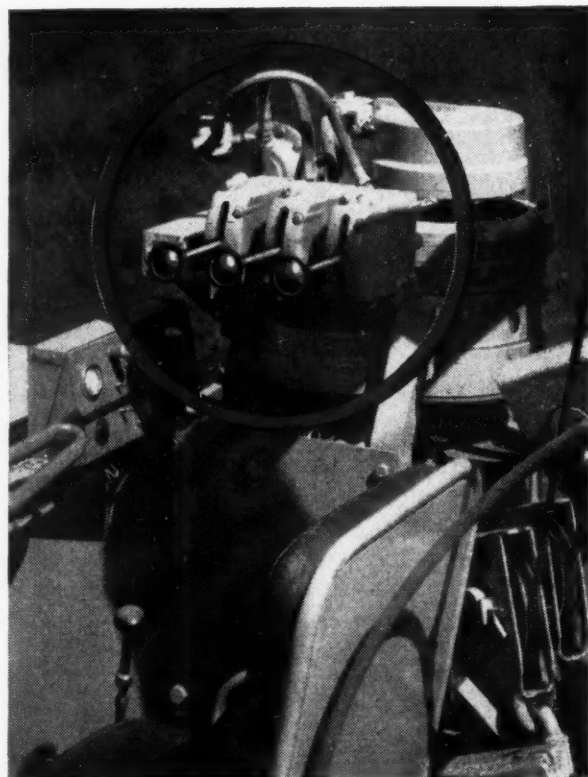
Enginairing has stepped in, to speed and simplify a tough, demanding job . . . cable hoist operation. A touch of a finger gives positive, split-second command of the blade, bowl, apron and "pivot-tilt" forced load ejector. The control maintains constant and uniformly even pressure on the cables, avoiding jerky starts or stops in reeving in or reeling out. Moreover it is non-slipping, and will take up or release to the exact position dictated by the location of the valve lever.

All this adds up to faster, surer loading, and quicker dumping of heaping loads, and helps contribute to the Terra-Cobra's ability to move earth at high speed and low cost.

W·A·B Enginairied Controls are available not only on earth moving machinery, but on cranes, hoists and oil well equipment produced by leading manufacturers. For top performance, specify W·A·B Controls.

## Westinghouse Air Brake Co.

Industrial Division: Wilmerding, Pa.



AIR COMPRESSORS



PNEUMATIC CONTROLS



WABCO PACKING

**MORE MOUNTINGS  
TO CHOOSE FROM!**

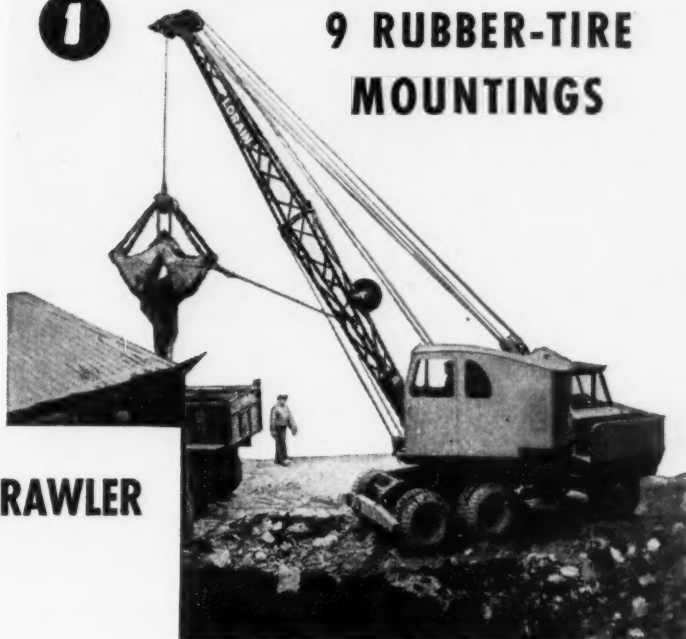
**NEW**  
**LORAIN TL-20**  
offers you a choice of..

The TL-20 offers you any measure of mobility your job dictates. Two-engine Moto-Cranes (33 M.P.H.) or single-engine self-propelled mountings (8 M.P.H.), both in 4 and 6 wheel types with or without front wheel drive.

Here are 9 different combinations to choose from. Every one proved both on the road and on the job. All are the product of the pioneer (and largest) manufacturer of rubber-tire mounted shovels and cranes.

**1**

**9 RUBBER-TIRE  
MOUNTINGS**

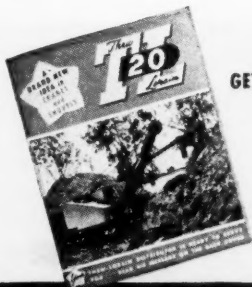


**2**

**OR A MODERN 2-SPEED CRAWLER**



If the job dictates crawlers, the TL-20 is readily available with 2-Speed Chain Drive Crawler. It travels 1 or 2 M.P.H. in both directions; offers such modern features as "full circle" steering, unit construction, a fully enclosed propelling mechanism running in oil and tread and travel lock.



**GET THE COMPLETE TL-20 STORY!**

We repeat—the TL-20 is truly a new postwar shovel and crane in the 1/2-yd. class, not a re-hash of wartime design and thinking. Ask your local Thew-Lorain distributor for copy of bulletin. It lays the facts on the line—and you'll like 'em!

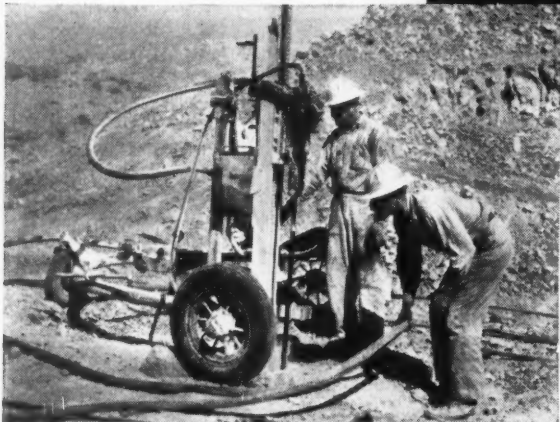
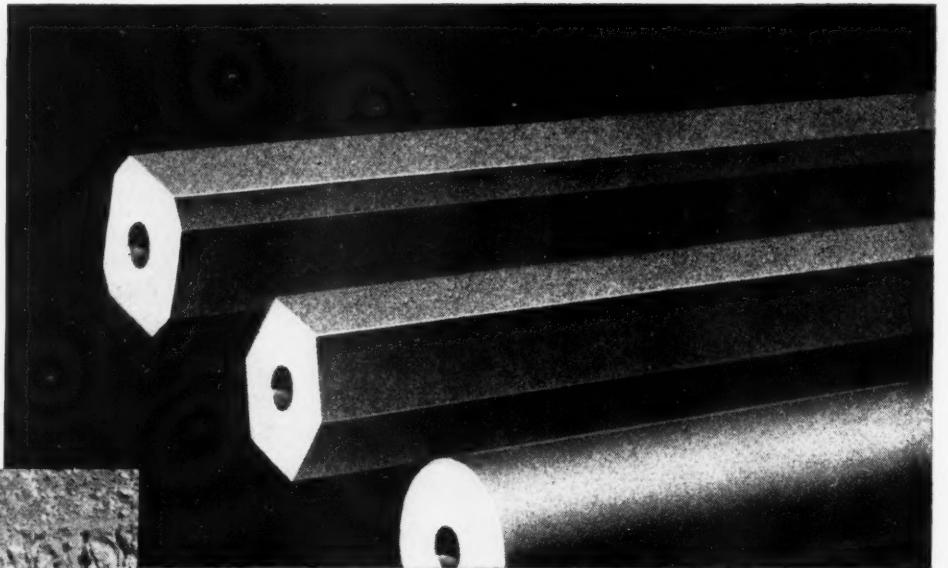
**Thew  
TL-20  
Lorain**

**THE  
THEW SHOVEL CO.**  
LORAIN, OHIO

**Available with 5 Interchangeable Booms and Choice of 10 Mountings**



**FORGE  
YOUR  
BITS?**



**OR USE  
DETACHABLES?**

Either way, you're safe with Bethlehem Hollow Drill Steel.

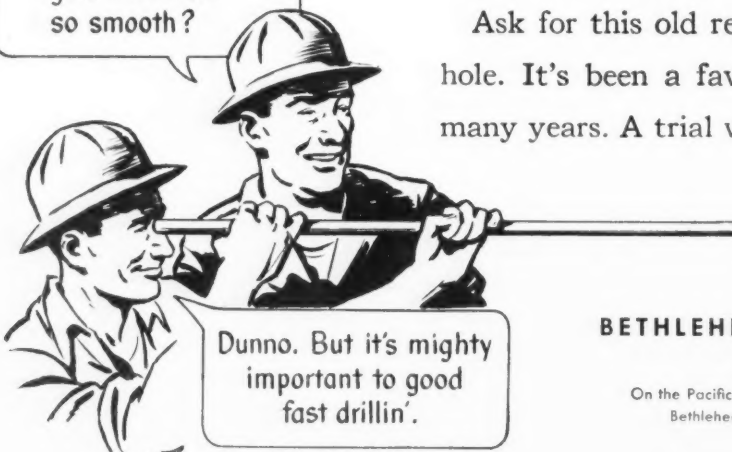
It gives you a keen, sharp edge, with plenty of hardness on the cutting surface, when you forge your own bits.

But if your preference runs to detachable bits, you'll like the easy threading of Bethlehem Hollow. It makes up into a beautiful rod with a neat, tight fit.

And in either event, you'll find that the shank stands up to the heavy battering of the piston. Every inch of Bethlehem Hollow, from bit end to shank, is tough and fatigue-resistant.

Ask for this old reliable steel with the smooth, well-centered hole. It's been a favorite on mining and contracting jobs for many years. A trial will show you why.

Wonder how Bethlehem gets that hole so smooth?



Dunno. But it's mighty important to good fast drillin'.

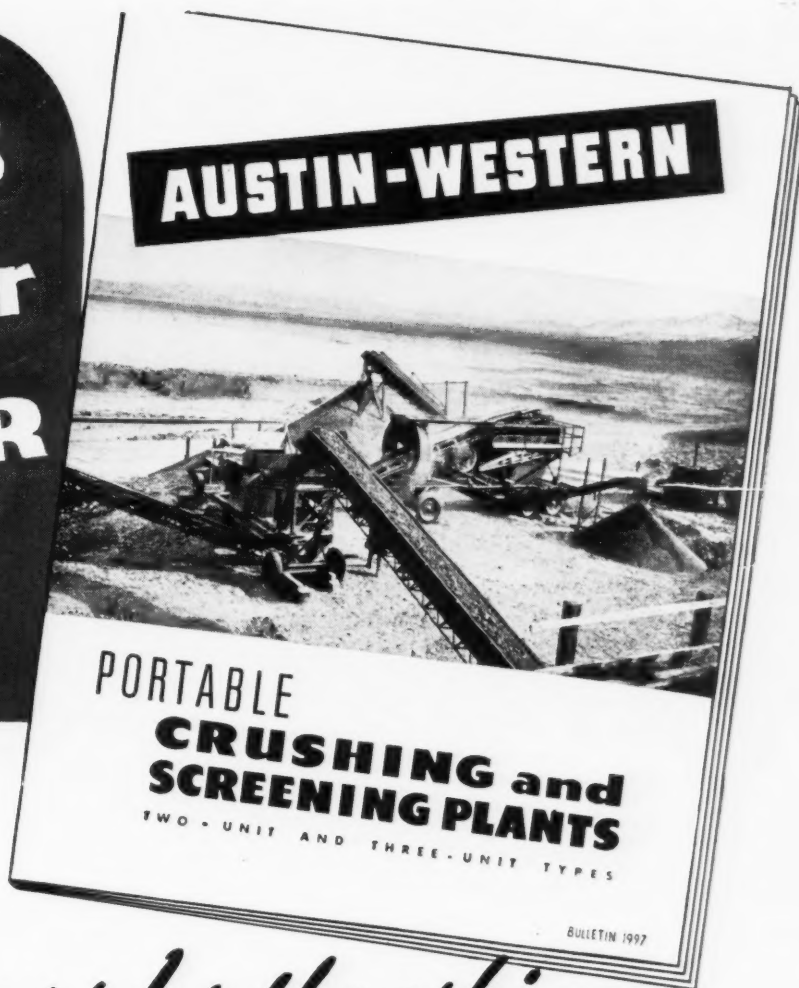
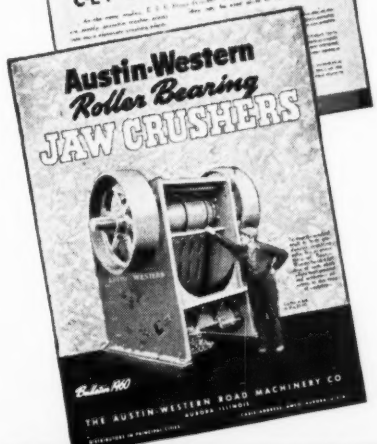
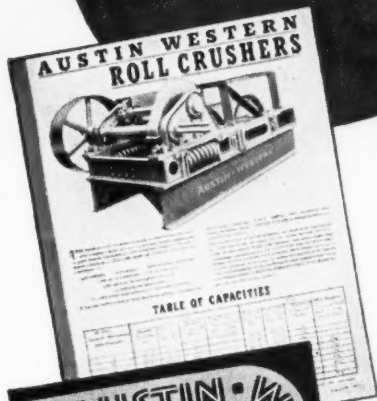
**BETHLEHEM STEEL COMPANY**  
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by  
Bethlehem Pacific Coast Steel Corporation



★ **BETHLEHEM HOLLOW DRILL STEEL** ★

# Guides to Greater POSTWAR Profits



*Yours for the asking.*

Copies of any or all of these interesting and informative bulletins.  
Ask for each by its number.

1999 Two-Unit and Three-Unit Crushing Plants . . . 1960 Jaw Crushers  
1991 C. E. P. (Crusher, Elevator, Power) Plants . . . 1933 Roll Crushers

• The Post-War demand for crushed aggregate for highway and all other forms of construction is already tremendous and growing day by day. Austin-Western is ready with a full line of job-tested equipment, including:

Jaw Crushers and Roll Crushers in a wide range of sizes; plus matching screens, elevators, conveyors and bins.

Portable Crushing Plants, from the smallest to the magnificent Two-Unit and Three-Unit Plants which combine maximum output and variety of specification on the one hand, and maximum economy of operation on the other; giving the owner flexibility of operation that spells maximum profits.

Your nearby Austin-Western dealer will be glad to recommend the plant best suited to your needs.

**AUSTIN-WESTERN COMPANY, AURORA, ILLINOIS, U.S.A.**

BUILDERS OF ROAD MACHINERY

# Austin Western

SINCE 1859



# KNOW YOUR LAST



*This "Caterpillar" Diesel 34-15 Electric Set generates all power for the construction of wooden forms used by Roush Construction Co.*

# CATERPILLAR

REG. U.S. PAT. OFF.

# COST FIRST



*Two "Caterpillar" Diesel Tractors—a D7 and a D8—are shown pulling scrapers on the Niobrara River project. Leveling the fill is a "Caterpillar" Diesel No. 12 Motor Grader.*

**"C**ATERPILLAR" Diesels have had to be good to get where they are—at the top in earthmoving.

The reason isn't their purchase price, for "Caterpillar" equipment doesn't come cheap. It's their rugged stamina, high earning power and low *last* cost that make so many successful owners demand nothing but "Caterpillar" Diesels.

Roush Construction Co., of Cheyenne, Wyoming, is using "Caterpillar" Diesel power exclusively on its part of the Niobrara River soil-conservation project. With a fleet of "Caterpillar" Diesel

Tractors and a "Caterpillar" Diesel No. 12 Motor Grader the company is building a "railroad dike" to carry an irrigation canal, near Hay Springs, Nebraska. In addition, a "Caterpillar" Diesel 34-15 Electric Set supplies all the power for sawing and fabricating wooden forms to build the concrete flumes and culverts.

Like other experienced contractors, the Roush Construction Co. knows that "Caterpillar" Diesels are built for long, dependable life, and that their low final cost is backed by efficient dealer service.

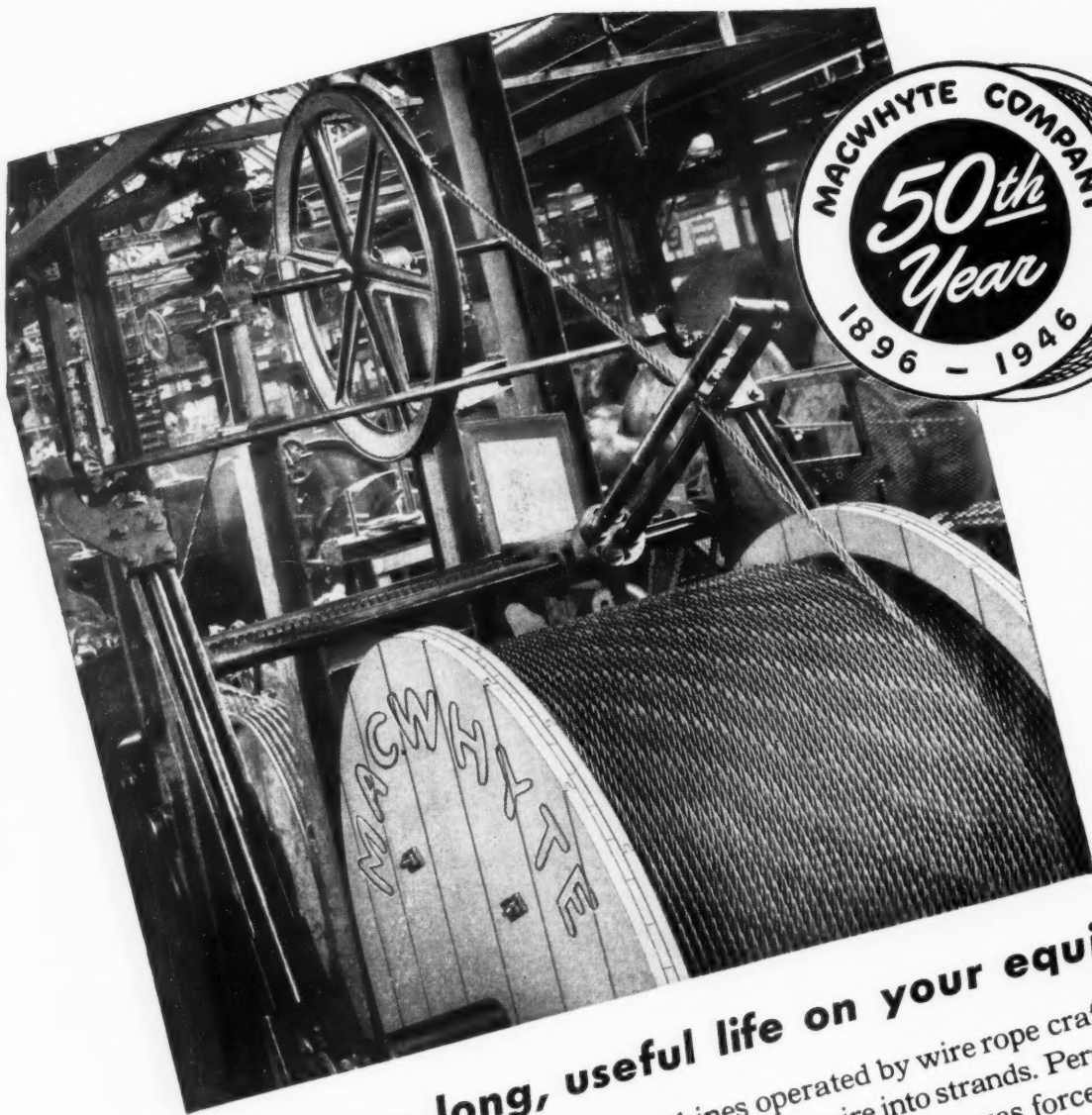
**CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS**

# D I E S E L

**ENGINES • TRACTORS • MOTOR GRADERS  
EARTHMOVING EQUIPMENT**

**—for lowest costs on earth**





## Ready to start a long, useful life on your equipment

Here you see Macwhyte Wire Rope as it comes from the closing machine. It is now ready to start giving the long service that has been so carefully built into it.

Select quality steel rods were its beginning. They were scientifically heat-treated and cold-drawn, into tough, metallurgically uniform wire. Precision

machines operated by wire rope craftsmen layed the wire into strands. Permanent internal lubrication was force-fed around each wire. Closing the lubricated strands completed the wire rope that will give longer, more economical performance on your equipment.

Macwhyte distributors and factory representatives are at your service.

**Make MACWHYTE your headquarters for WIRE ROPE AND SLINGS**

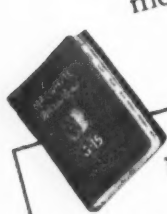
## MACWHYTE COMPANY

Wire Rope Manufacturers  
2941 Fourteenth Avenue, Kenosha, Wisconsin

Mill Depots: New York · Pittsburgh · Chicago · Fort Worth · Portland · Seattle  
San Francisco · Distributors throughout the U. S. A. and other countries

MACWHYTE PREformed and Non-PREformed Wire Ropes  
and Internally Lubricated Wire Rope . . . MONARCH WHYTE STRAND  
Wire Rope . . . Special Traction Elevator Rope . . . Braided Wire  
Rope Slings . . . Aircraft Cables, Assemblies and Tie-Rods . . . Stainless  
Steel Wire Rope, Monel Metal Wire Rope,  
Galvanized Wire Rope.

NO. 860-B



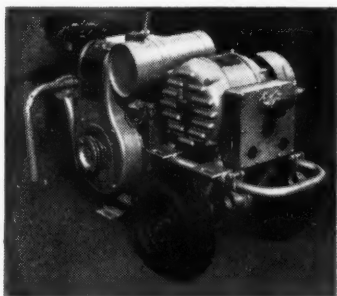
**170-page Wire Rope Catalog G-15,  
yours for the asking**

Lists Macwhyte's complete line. Gives other valuable information. Ask any Macwhyte representative or write Macwhyte Company.

# JACKSON VIBRATORS

*The Line that Solves EVERY Concrete Vibrator Problem to BEST Advantage*

**F**OR each and every purpose to which Vibrators are applicable in the concrete industry, we are confident we can supply the equipment that will give you not only the best and fastest placement, but also the maximum of dependability and trouble-free service. Pioneers and outstanding developers of vibratory equipment, our complete line includes internal and external vibrators for: General Construction \* Light Construction \* Mass Concrete Dam Construction \* Hard-to-get-at Places \* Form Vibrating \* Floors, Streets and Highways \* Pipe Manufacturing \* Movement of Materials — Vibratory Tables, etc. Drop us a line for the best solution to any concrete vibrating problem.

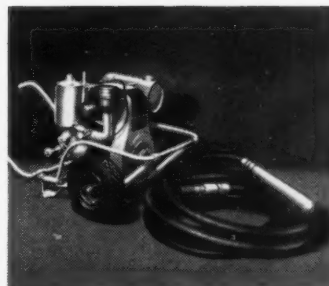


**JACKSON PORTABLE POWER PLANTS**

A new high in dependable portable power is now available in Jackson postwar Power Plants having permanent magnet generators which are free of commutators, collector rings, brushes, brush holders and similar small parts, ordinarily the source of trouble. Especially designed for severest service under continuous operating conditions. Simple, rugged construction and design, stripped of fussy control gadgets. Run all Jackson Vibrators, for lights, and all types of contractor's power tools. One to 7.5 KVA sizes available.

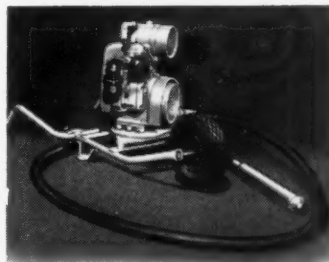
## HS-A1 HYDRAULIC CONCRETE VIBRATOR

This is a general purpose machine of the internal type adapted to a wide range of applications. Operated by light oil pumped through hose line 34 feet long to hydraulic motor in vibrator head. Valve on power plant adjusts frequency desired, from idling to top speed of 7200 V.P.M. All moving parts in the hydraulic medium (oil). Vibrator head  $2\frac{3}{4}$ " diameter, standard, gas engine, air cooled 4.7 H.P. A general favorite because of its wide range of application and low maintenance.



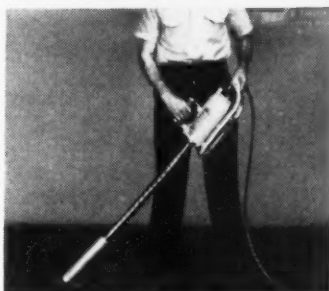
## FS-6A GAS-DRIVEN, FLEXIBLE SHAFT CONCRETE VIBRATOR

For placing concrete in wall, column and slab sections of ordinary size. The smaller vibratory head is exceptionally well adapted to concrete placement in thinner sections. 3 H.P. air-cooled gas engine. Automatic clutch, V-belt drive. Countershaft has oilite bearings. Turntable base, dirtproof. Optional wheelbarrow with drop down lifting handles. Flexible shaft drive. Vibrator head  $2\frac{3}{8}$ " diameter x  $18\frac{1}{2}$ " long or  $1\frac{1}{2}$ " x 17". Frequency 7000 to 7200 V.P.M. variable with length of shaft, size of head, and concrete consistency.



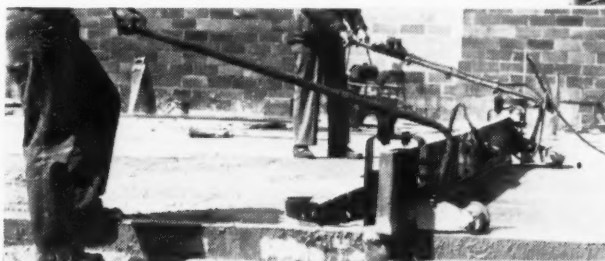
## FS-7A ELECTRIC-DRIVEN, FLEXIBLE SHAFT CONCRETE VIBRATOR

A truly general construction vibrator which because of its exceptionally powerful but lightweight motor, will operate any of our standard vibrator heads ( $2\frac{3}{8}$ " x  $18\frac{5}{8}$ ";  $1\frac{1}{2}$ " x  $16\frac{7}{8}$ ";  $1\frac{1}{2}$ " x  $10\frac{3}{4}$ ") with shaft lengths of 24", 36", 7', 14' and 21'. Universal motor, operates on 115 Volt A.C. or D.C. and will deliver 7000 to 10,000 to 10,000 V.P.M. depending on the consistency of concrete, head and length of shaft employed. Does the work of many large vibrators.



## ELECTRIC VIBRATORY SCREED SC-200

Self-propelling tendency in forward direction. Second passes made by simply rolling back necessary distance. Gets right up to walls. Stands upright by itself. Double handles for two-man operation; crossbar furnished for one-man handling of screeds not longer than 9 ft. Operates



on commercial power or preferably from Jackson Power Plant of variable speed — provides quick change of vibratory frequency to handle wide range of concrete mix and placing conditions, assuring thorough puddling.

**ELECTRIC TAMPER & EQUIPMENT CO., Ludington, Michigan**



# "THE NEW ATHEY ML4 MOBILOADER gives 'Top-Notch' Performance!"

Tracy Rock & Gravel Co., Tracy, California, reports the new "over-head" Athey ML4 MobiLoader is proving a money-maker.



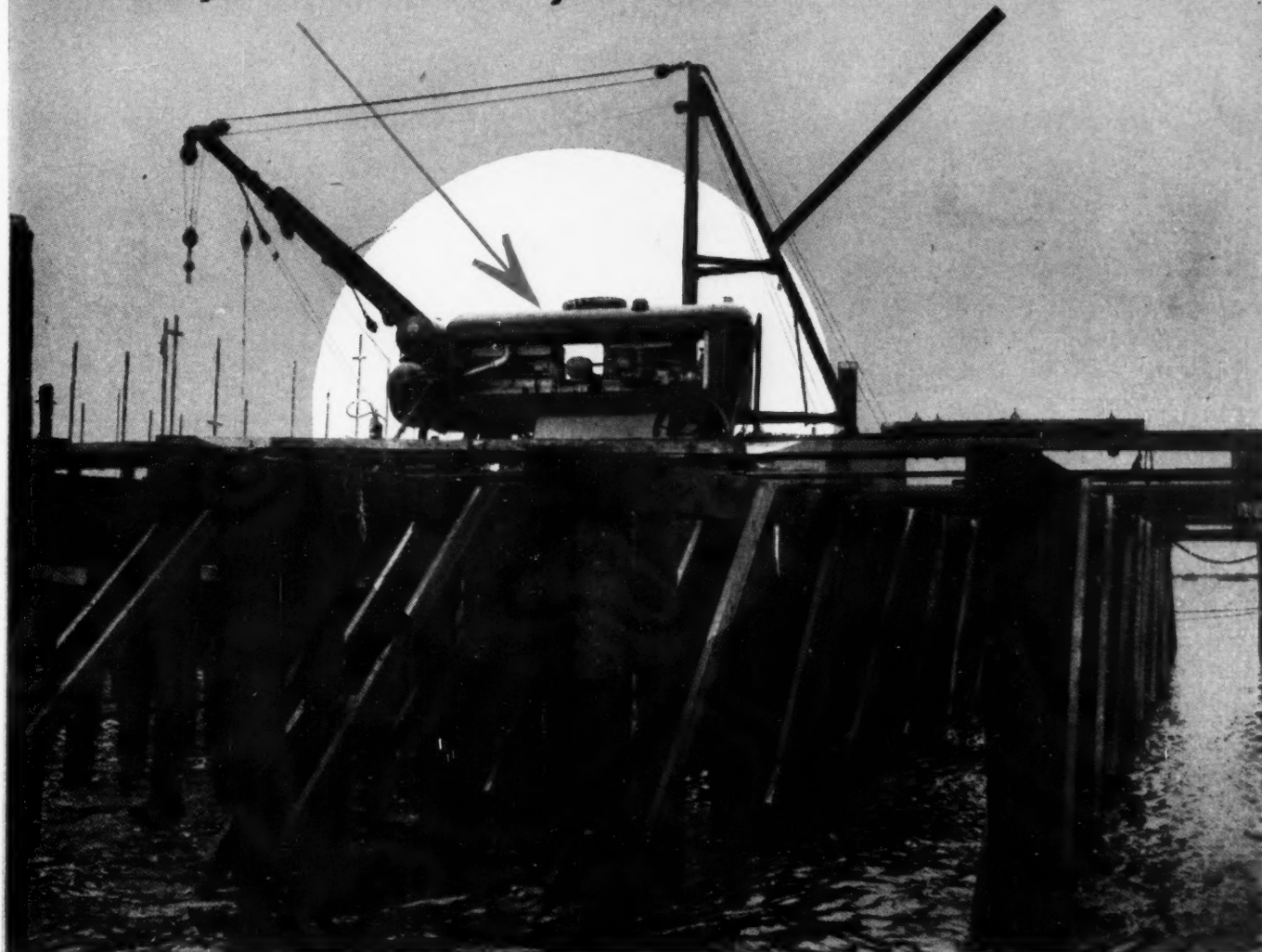
More praise for the new Athey ML4 MobiLoader! Owner George French, Jr., of the Tracy Rock and Gravel Co., Tracy, California, sums it up—"The New Athey MobiLoader gives 'top-notch' performance". This outstanding tractor-loader represents five years of intensive research and engineering by Athey engineers. New features of hydraulic control — new "Caterpillar" Tractor

Mounting—new stronger and simpler design—all these add profit-making advantages for all of your excavating and loading operations. In the new MobiLoader, Athey's modern methods of advanced manufacturing help spell long life and dependability. Your Athey-"Caterpillar" Dealer can tell you more about this new "standout" tractor loader. **Athey Products Corporation, Chicago, Illinois**

# Athey

## ML4 MOBILOADER

## *Compressed Air for Construction Work*



**ANYWHERE**

### **WITH SCHRAMM AIR COMPRESSORS !**

Construction work indoors, outdoors, on land, on water ... anywhere ... Schramm Air Compressors are sturdy enough, compact and lightweight enough, to give you all the compressed air you want!

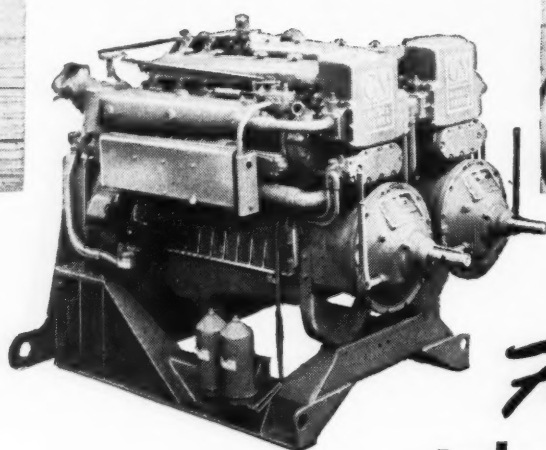
The construction field likes these Schramm features: 100% watercooled, permitting running with hood "on"; forced feed lubrication; mechanical intake valve; easy to move about on the job!

Schramm Compressors come in a complete range of sizes, to meet your needs. Write today for complete information on Schramm Compressors and Pneumatic Tools.

**SCHRAMM** INC.

THE COMPRESSOR PEOPLE  
**WEST CHESTER**  
**PENNSYLVANIA**





## CONTRACTORS

*For Great Diesel Power*

**take a tip from salty skippers**

**D**AYS on end the engines of tuna clippers, gulf shrimpers and Grand Banks fishermen are on the go. Such engines have to be rough and dependable. And they're extra valuable when they provide brawny, economical Diesel power in small space. For that leaves more room for the catch.

So if you look in the hulls of some of the fastest, most successful boats in fishing fleets, you'll find General Motors Series 71 Diesel engines.

This is because GM Diesels have stamina, low-cost operation, and then something more. They pack their power in compact, easy-to-get-at units.

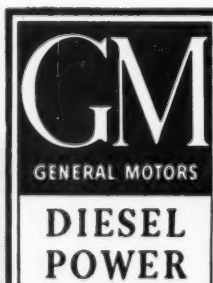
These and other GM Diesel qualities now make Diesel power available to many industries where size and weight heretofore prevented its use.

\* \* \*

So whatever needs for power you may have in road-making machinery, crushers, shovels or any other construction equipment—look to GM Diesels.

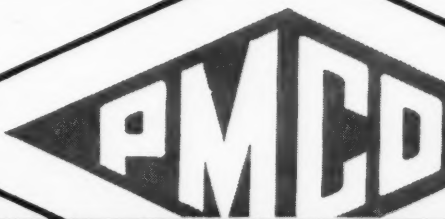
### DETROIT DIESEL ENGINE DIVISION

DETROIT 23, MICH. • SINGLE ENGINES... Up to 200 H.P.  
MULTIPLE UNITS... Up to 800 H.P.  
GENERAL MOTORS



### Features of GM Diesels Important to Every User of Power

- QUICK TO START**—on their own fuel
- ECONOMICAL**—run on low cost fuel
- EASY TO MAINTAIN**—clean design plus accessibility
- LESS FIRE HAZARD**—no volatile explosive fuel
- COMPACT**—readily adaptable to any installation
- SMOOTH OPERATION**—rotating and reciprocating forces completely balanced
- QUICK ACCELERATION**—2-cycle principle produces power with every downward piston stroke



## America's Most Complete Line of Material Handling Buckets

*All purpose -*

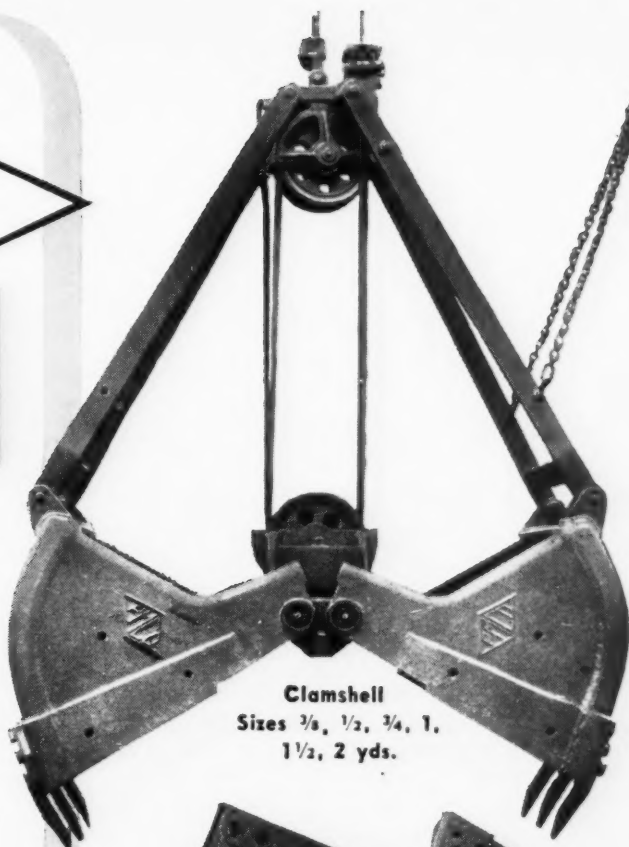
- **SHOVEL**
- **PULLSHOVEL**
- **DRAGLINE**
- **CLAMSHELL**

• FRONTS, BOTTOMS, SCOOPS and TEETH are 14% manganese steel developing tensile strength up to 120,000 p. s. i. This high percentage manganese steel gives tough, rugged strength for hard service and allows wide set corner teeth for easy entrance in digging. Volume production methods enable us to build a better bucket with amazing economies in manufacturing.

On the 1/2 yd. and 3/4 yd. Shovel, Pullshovel, and Dragline Buckets, all teeth are interchangeable — a great advantage to operators.

### *Experience Counts*

See your shovel man or equipment dealer about PMCO Buckets and Dippers.



**Clamshell**  
Sizes 3/8, 1/2, 3/4, 1, 1 1/2, 2 yds.

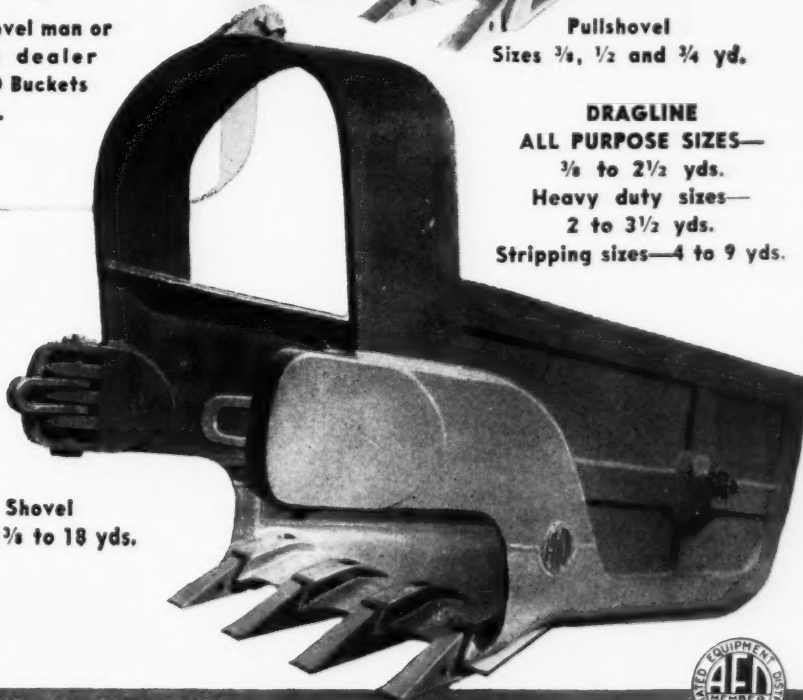


**Pullshovel**  
Sizes 3/8, 1/2 and 3/4 yd.

**DRAGLINE**  
**ALL PURPOSE SIZES—**  
3/8 to 2 1/2 yds.  
**Heavy duty sizes—**  
2 to 3 1/2 yds.  
**Stripping sizes—4 to 9 yds.**



**Shovel**  
Sizes 3/8 to 18 yds.



"Quality Since 1880"

# PETTIBONE MULLIKEN CORP.

CHICAGO 51,  
U. S. A.

WE OPERATE THE LARGEST AND MOST COMPLETE MANGANESE STEEL FOUNDRY IN THE UNITED STATES.





# HELPS KEEP YOUR SET-UP STEPPING!



SOCONY-VACUUM OIL COMPANY, INC., and Affiliates: Magnolia Petroleum Company, General Petroleum Corporation

## On Any Job, from Start to Finish, this Complete Lubrication Service Can Help You Save Time!

**QUESTION:** Too many machine breakdowns snarling up time schedules . . . slowing output?

**ANSWER:** We can help you get full-power output full-time from *all* your equipment—by providing you with exactly the right oil or grease for every machine part!

**QUESTION:** Forced to “borrow” time from other jobs to refuel and lubricate?

**ANSWER:** We schedule regular on-the-job deliveries. Result: Fewer and shorter field interruptions. Fewer inventory problems—less bother with rush orders. A single reliable source for everything!

**QUESTION:** Looking for answers to maintenance problems that make *your operation different*?

**ANSWER:** Our representative supplies tested maintenance plans determined by *your* equipment, *your* operating methods, *your* set-up—helps your men adapt them to your special requirements.

**QUESTION:** On the spot because certain “problem” machines keep hogging down . . . tie up other machines?

**ANSWER:** Help with balky equipment is another service our representative offers. He can also draw on our vast engineering staff for expert counsel in critical cases.

**QUESTION:** Too pressed for time to train inexperienced men as carefully as you'd like?

**ANSWER:** Here, too, our representative can save you time—by instructing “green” help on the Do's and Don't's of Correct Lubrication.

*Why Be Satisfied Merely With “Gas and Oil” When You Can Get Complete Service!*

**SOCONY-VACUUM**  
*Contractors' Lubrication*  
**SERVICE**

**CORRECT LUBRICATION**  
**FOR EVERY PART**  
**OF EVERY MACHINE**  
*—Real Help with Maintenance Problems!*

Tune in The Mobilgas Program, Monday Evenings, 9:30 E. S. T.—NBC

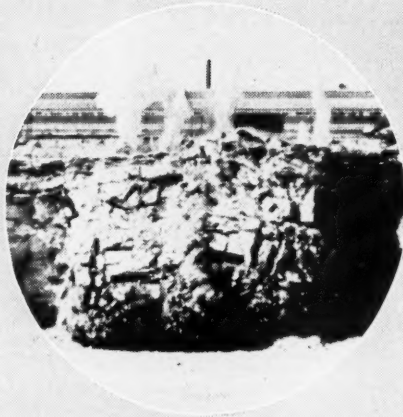


# BLASTING SENSATION OF 1946

## ATLAS ROCKMASTER BLASTING SYSTEM



IN STRIPPING OPERATIONS



IN QUARRYING  
AND CONSTRUCTION



IN UNDERGROUND MINING

Genuine Atlas Rockmaster... the first major blasting development since the war... is the sensation of the year. The now famous *one-two* blasting punch is paying off!

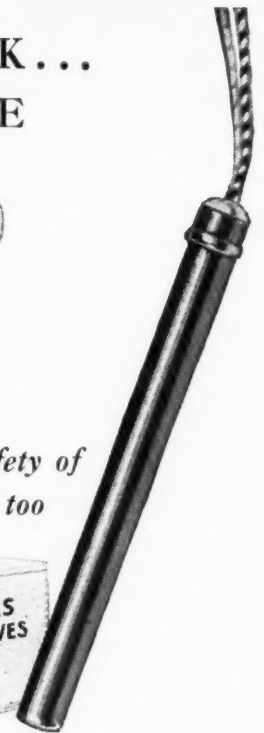
By enabling the blaster to time his delay in milliseconds... a feat never before possible... Atlas Rockmaster has boosted production tremendously. All records for fragmentation have been broken. Shovel efficiency has increased. And, believe it or not, complaints about noise and vibration have ceased in many cases, even when more holes are shot with each blast.

Rockmaster is *not* just a new blasting device. *It's a whole system* "made to measure" for each particular job. It takes into account drilling, type of explosive, and timing of detonation. No wonder blasters and shovel operators all over the country are praising Atlas Rockmaster. Call in your Atlas representative and find out how Rockmaster can be tailored to fit your own problems.

LESS BARK...  
MORE BITE



You get the extra safety of  
*Manasite Detonators, too*

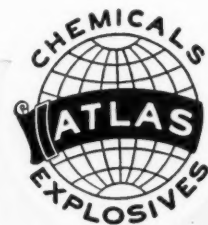


"ROCKMASTER"—Trade Mark  
Manasite: Reg. U. S. Pat. Off.

# ATLAS

## EXPLOSIVES

"Everything for Blasting"



ATLAS POWDER COMPANY, Wilmington 99, Del. • Offices in principal cities • Cable Address—Atpowco

# This modern water pipe gives you **SPEED ON THE JOB**



**ON CURVES** and in hilly ground, too, Transite makes your job easier. Its flexible Simplex Couplings permit up to 5° deflection at each joint without the use of special fittings.



**IN THE TRENCH**, Transite's Simplex Coupling—the "packaged" joint that's made at the factory and assembled on the job—saves man hours. Furthermore, each joint can be checked for proper assembly as the pipe is laid—advance assurance that the line will meet final test requirements.

**H**ERE'S ONE WATER PIPE you can count on for easier handling . . . faster installation.

Step by step, from unloading through assembly to final testing . . . this modern asbestos-cement pipe cuts man-hours and saves man-power. All but the larger sizes can be handled without mechanical equipment. The Simplex Coupling reduces assembly time . . . assures tight, yet flexible joints . . . permits narrower trenches with minimum disturbance to pavement.

And when the job is done, Transite's uniform strength, high-flow capacity unaffected by tuberculation, and proved resistance to corrosion all add up to efficient, economical performance through the years.

For complete information, send for Brochure TR-11A. Address Johns-Manville, Box 290, New York 16, New York.



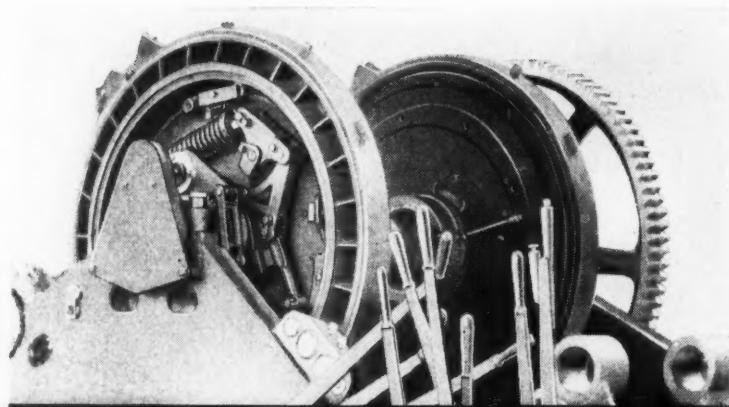
## Johns-Manville **TRANSITE PRESSURE PIPE**

An Asbestos Product



# KOEHRING

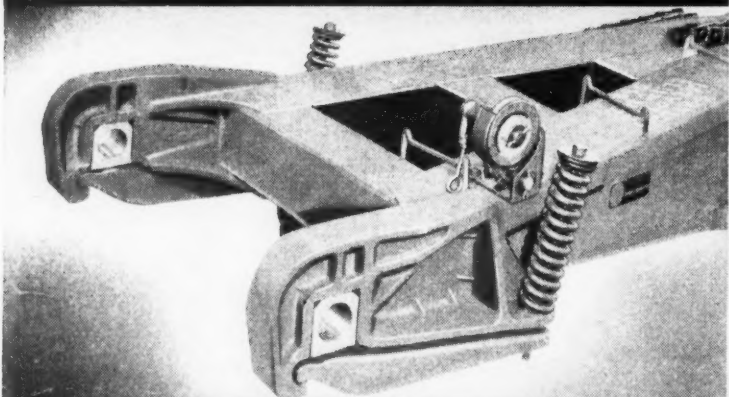
## Output Per Shift



Engine power does the heavy work, supplies 90% of the effort when operator sets these main drum clutches on the Koehring 605.



Light lever pull, 7 lbs. average, eliminates operator fatigue. No costly production letdown at shift end.



Two coil-spring shock absorbers, one on each side of boom-foot, cushion out shocks and stresses of rock handling.

### 1 New Exclusive Power Clutch Steps Up Operator Efficiency

Top production all day long, because the Koehring 605 is easy on the operator. No physical fatigue, because heavy hand-lever pull is eliminated. Engaging the Koehring 605 Power Clutch, takes only 1/10 the lever pull required to set a manual clutch of similar size. Lever pull is rarely more than 7 lbs. No nervous fatigue, because "Feel of Load" has been retained. Clutch is completely responsive.

### 2 Boom Foot Shock Absorbers Step Up Rock Digging Output

Coil-spring shock absorbers, one on each side of boom foot, protect the Koehring 605 against boom strains and sudden loads. This not only insures against boom troubles and delays, but also speeds up entire digging cycle. With the 605, your operator can use full speed up through the bank without fear of catching a ledge or niggerhead on the corner . . . can use full throttle on the swing, brake sharply over the truck, letting the shock absorber take care of "whip" action.

See your Koehring Distributor for more information on the 605.



With entire shovel shock-absorber protected, it's safe to handle big dipper loads like this. No danger of boom trouble here.

# KOEHRING COMPANY

Milwaukee 10, Wis.

Subsidiaries: JOHNSON • KWIK-MIX • PARSONS



# 605 SHOVEL

## *Stepped Up 2 Ways*



**KOEHRING DUMPTOR: A Hauling Unit Built by a Shovel Manufacturer**



**Gravity Dump . . . No Body Hoist:** Touch release lever and gravity tilts scoop shaped body instantaneously. Always dumps fast and clean. No maintenance on hoist unit.

**High Speed . . . Reverse or Forward:** No slow turns shuttling from shovel to dump. Dumptor travels as fast in reverse as forward. Eliminates time wasted turning, speeds spotting.



... not with the Gardner-Denver Backfill Tamper!

This tamper mechanically compacts the backfill to meet the most exacting requirements—and *does it fast*.

Easily walked over the fill and balanced for smooth handling, the Backfill Tamper cuts down operator fatigue. Power consumption is remarkably low. And neither the valve nor the exhaust has a tendency to freeze in cold, damp weather.

Speed up operations with the rugged Gardner-Denver Backfill Tamper. For complete information, write Gardner-Denver Company, Quincy, Illinois.

**INTEGRAL OIL RESERVOIR** *assures complete lubrication.*

**CYLINDER BORE SPECIALLY BURNISHED**—*highly wear-resistant.*

**LOW LIFT END SEATING VALVE** *provides efficient piston action over a long period of time.*

**TAMPING PAD FIRMLY SECURED** *on piston rod by tapered shank and tapered lock nut.*

**DESIGNED FOR SIMPLE MAINTENANCE.**

# GARDNER-DENVER

*Since 1859*

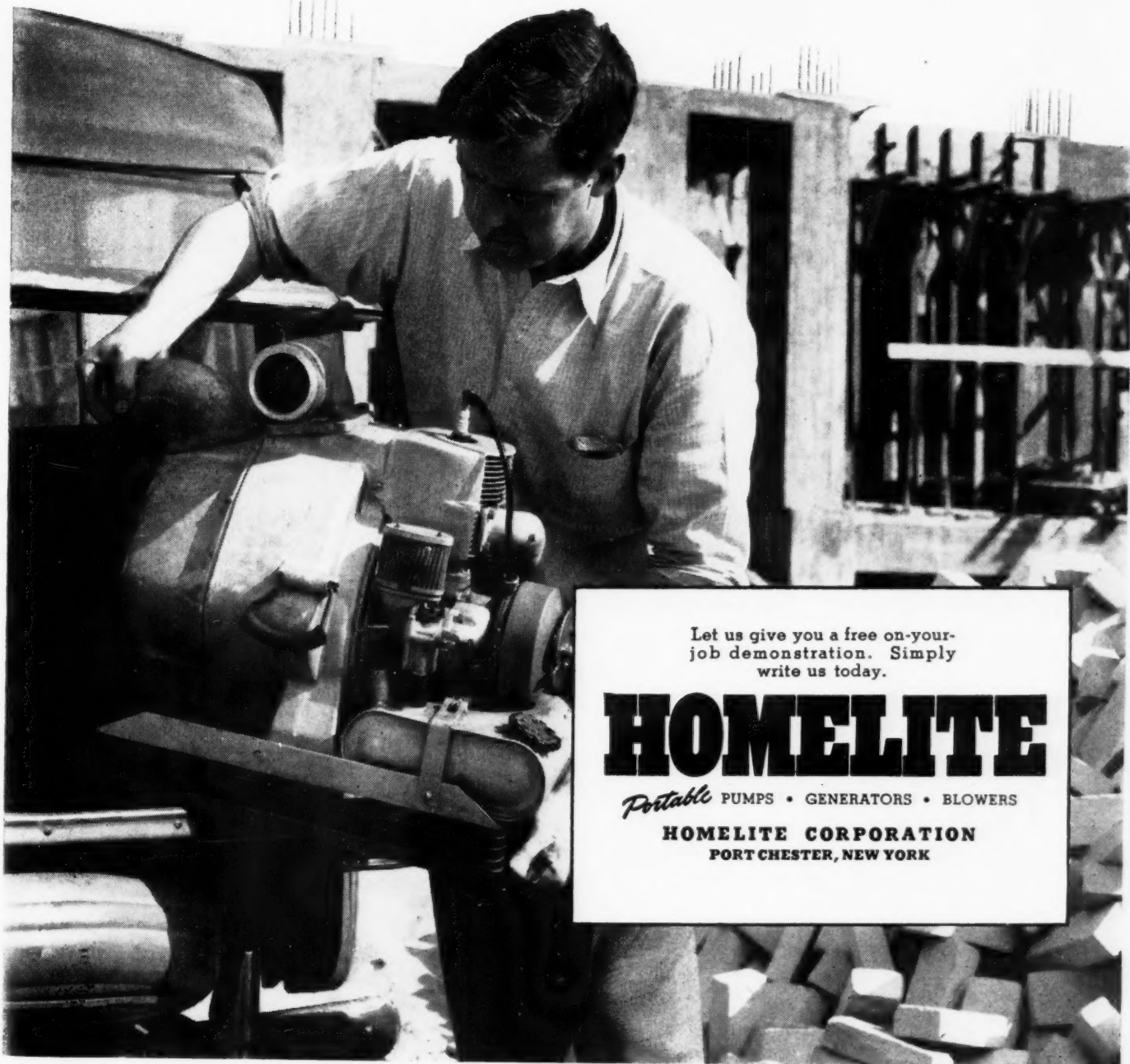
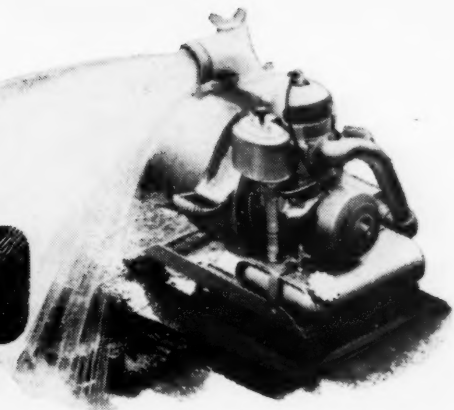




# The Pump

**THAT WASTES  
NO TIME**

Easily portable, self-priming, fast-pumping and completely automatic, a Homelite Gasoline-Engine-Driven Pump gets to a job and does its job with no waste of time or manpower.



Let us give you a free on-your-job demonstration. Simply write us today.

## **HOMELITE**

*Portable* PUMPS • GENERATORS • BLOWERS

**HOMELITE CORPORATION**  
PORT CHESTER, NEW YORK

# when you buy an asphalt

**1** The Cedarapids Model "A" — is a knock-down type, hot-mix, 1,000-lb. batch, portable asphalt plant built to handle medium-sized black top jobs at a profit. 2' x 6' Cedarapids-Symons screen, 1,000-lb. capacity pug mill, 4' x 16' drier.

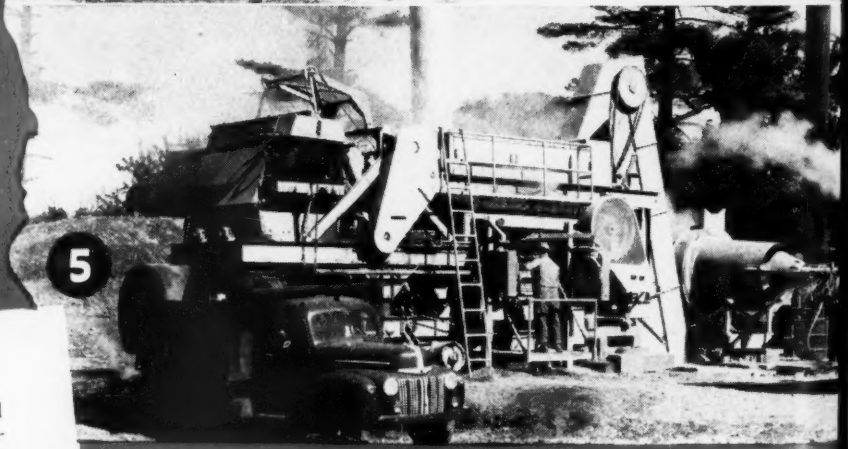
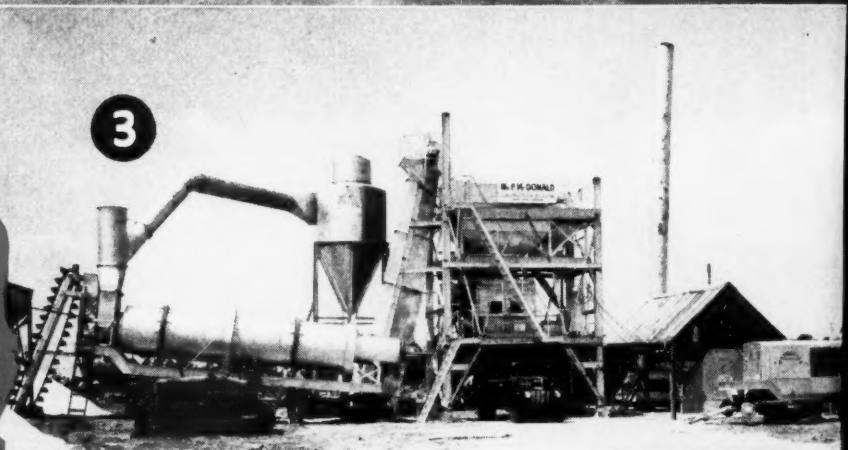
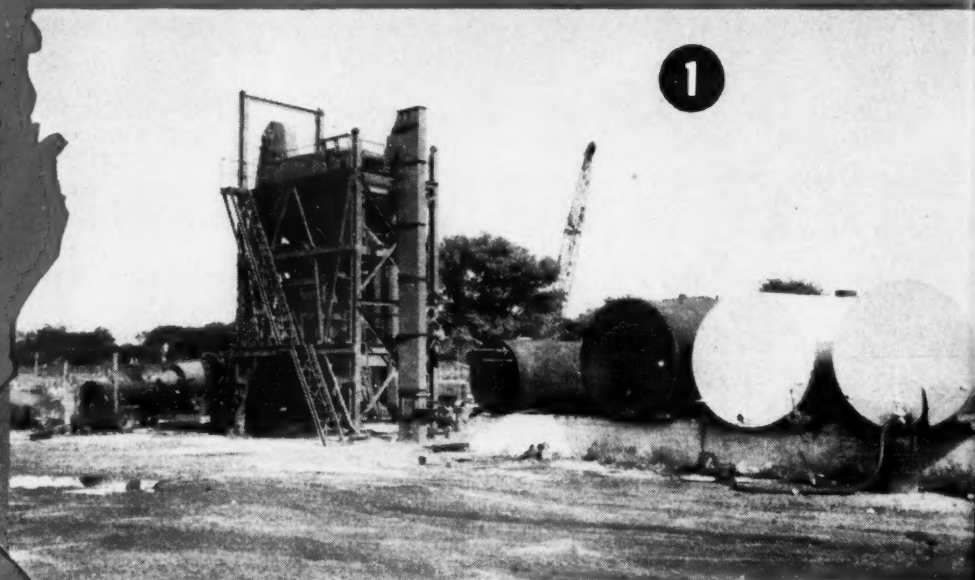
**2** The Cedarapids Patch-master — is the handiest, low-cost, portable, continuous-mix type asphalt plant you ever saw for handling small quantity runs of patching aggregate. Capacity up to 30 tons an hour. Bulletin PM.

**3** The Cedarapids Model "E" — is a big capacity, portable asphalt mixing plant that, combines accurate batching, thorough mixing, portability and quick assembly. 3,000 or 4,000-lb. pug mill capacity. Ask for Bulletin AP-11.

**4** Cedarapids Driers — are available in all standard diameters and lengths to fit every drier need. Gasoline, diesel or electric powered. Portable or on skids. With or without fuel oil heater sets. With or without dust collectors. Ask for Bulletin AP-5.

**5** The Cedarapids Model "FA" — is our most portable, high capacity batch-type asphalt mixing plant. Can be set up ready for operation in a matter of a few hours. 25 cu. ft. capacity. Gasoline, electric or diesel power. Bulletin AP-F1.

**6** The Cedarapids Pug Mills — are offered in 1,000, 2,000, 3,000 and 4,000 lb. capacities. "Nihard" paddle tips are reversible and replaceable. Steam, air or manually-operated gates. Available with or without steam jackets. Bul. AP-4.



## IOWA DEALERS

Iowa Dealers are qualified by training and experience to help you get real low-cost production in your crushing, screening and asphalt mixing operation — to recommend and sell the equipment that will enable you to meet the strictest specifications at a good profit — and service your equipment to assure the minimum of lost time. There's a Cedarapids dealer in almost every important city ready for your call.

## IOWA MANUFACTURING

CEDAR RAPIDS, IOWA, U. S. A.

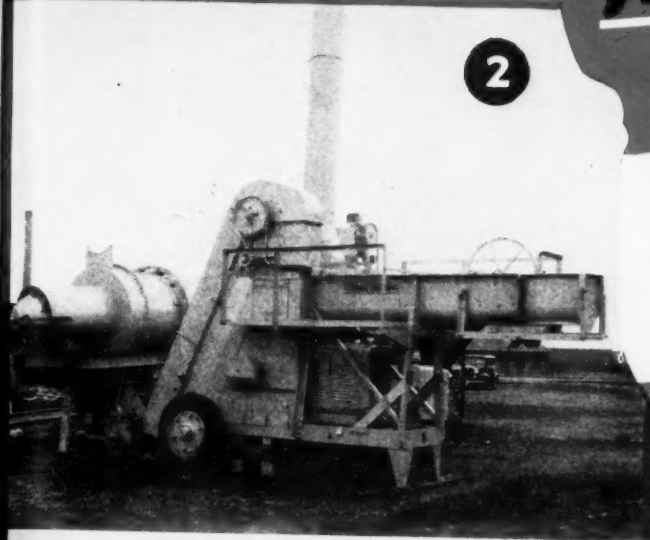


plant . . .

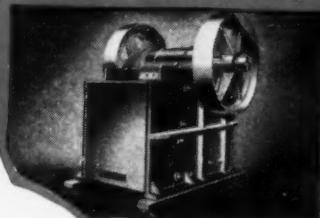
*Buy the Best..*  
*... Buy*

**Cedarapids**

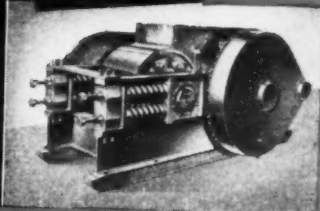
*Built by*  
**IOWA**



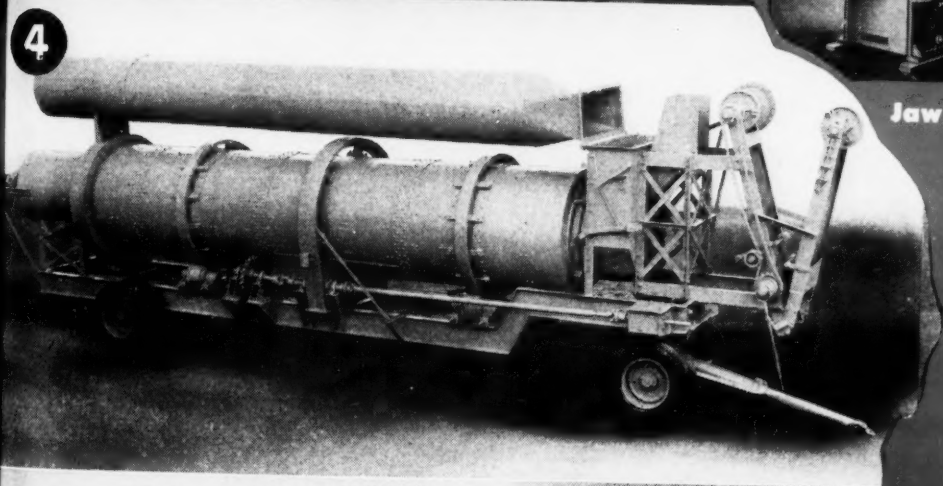
2



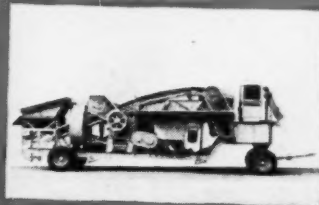
**Jaw Crushers**



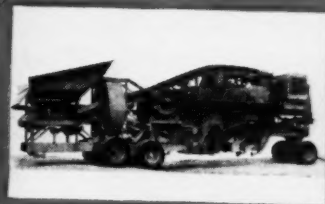
**Roll Crushers**



4

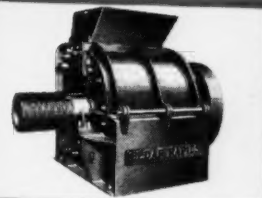
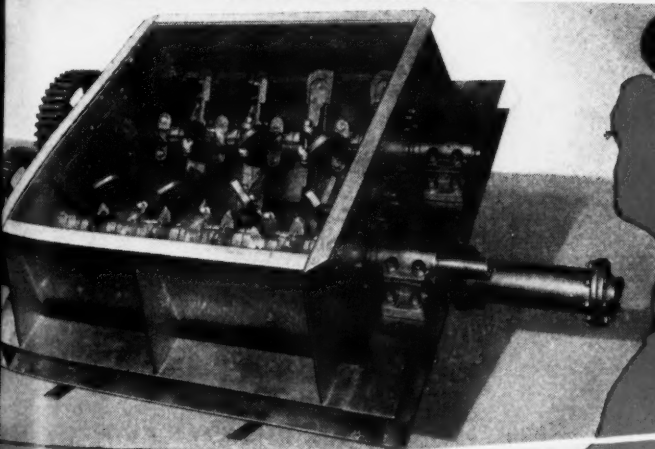


**Pitmasters**

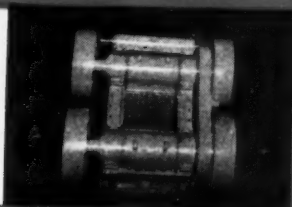


**Junior Tandems**

6



**Hammermills**



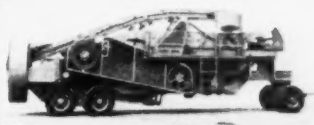
**Twin Jaw Crushers**

**COMPANY**

Iowa also makes a complete line of portable crushing and screening plants and single units for every quarry or pit requirement. For the best in aggregate producing equipment—Buy Cedarapids.



**Unitized Plants**



**Master Tandems**

# 118,000 miles of truck operation on original rings

**"Competent service men plus good drivers plus Stanolube HD means trouble-free operation" says Mr. W. C. Bringwald of Bringwald's Transfer, Vincennes, Indiana.**

As proof of his statement Mr. Bringwald offers the record of a new 1942 GMC truck-tractor, which was put in service in this fleet early in 1943. It was started on Stanolube HD.

A preventive maintenance program, including a driver's daily check, regular oil drains and valve grinds as required, was carefully followed. Now, after 118,000 miles of operation, this unit still shows good compression pressures. Mr. Bringwald expects to get at least 150,000 miles on the present rings.

As a result of this fine record, all seven GMC and four International



Left to right: O. H. Collier, Standard Oil Automotive Engineer, W. C. Bringwald, and C. A. Taylor, Standard Oil representative, discussing fleet-maintenance problems. This Automotive Engineering Service is available to all fleet operators in the Middle West.

trucks in the fleet now operate on Stanolube HD.

You can find out how much this modern heavy-duty motor oil will cut maintenance simply by asking a Standard Oil Automotive Engineer to test it in one of your hard-working trucks. This Engineer also has a Streamlined PM plan to help you get maximum life and power from all units in your fleet. Write Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois, for the Engineer nearest you.

## Stanolube HD



W. C. Bringwald, fleet owner, standing beside the 1942 GMC tractor which has operated 118,000 miles on the original piston rings with Stanolube HD.

### STANDARD OIL COMPANY (INDIANA)

STANDARD SERVICE



# A 'BIG TIME' RIG

## in a little package

**W**E WORKED our 10-B every day for nearly two years . . . "In 23 months of fast, steady operating we had only 5 hours lost time" . . . "Only minor repairs in over two years of steady service" . . .

These are typical of owners' comments describing the 10-B's ability to keep on delivering high speed output day after day. From actual operation they've learned that the 10-B is unmatched for speed in its class and that it's packed with time-saving features which permit making maximum use of its speed each shift: Easily made lasting adjustments, easy maintenance, coordinated cycle, conveniently grouped controls, plenty of propelling speed and climbing ability. Ask any 10-B owner about the 'big-time' performance of this machine.

NDK46

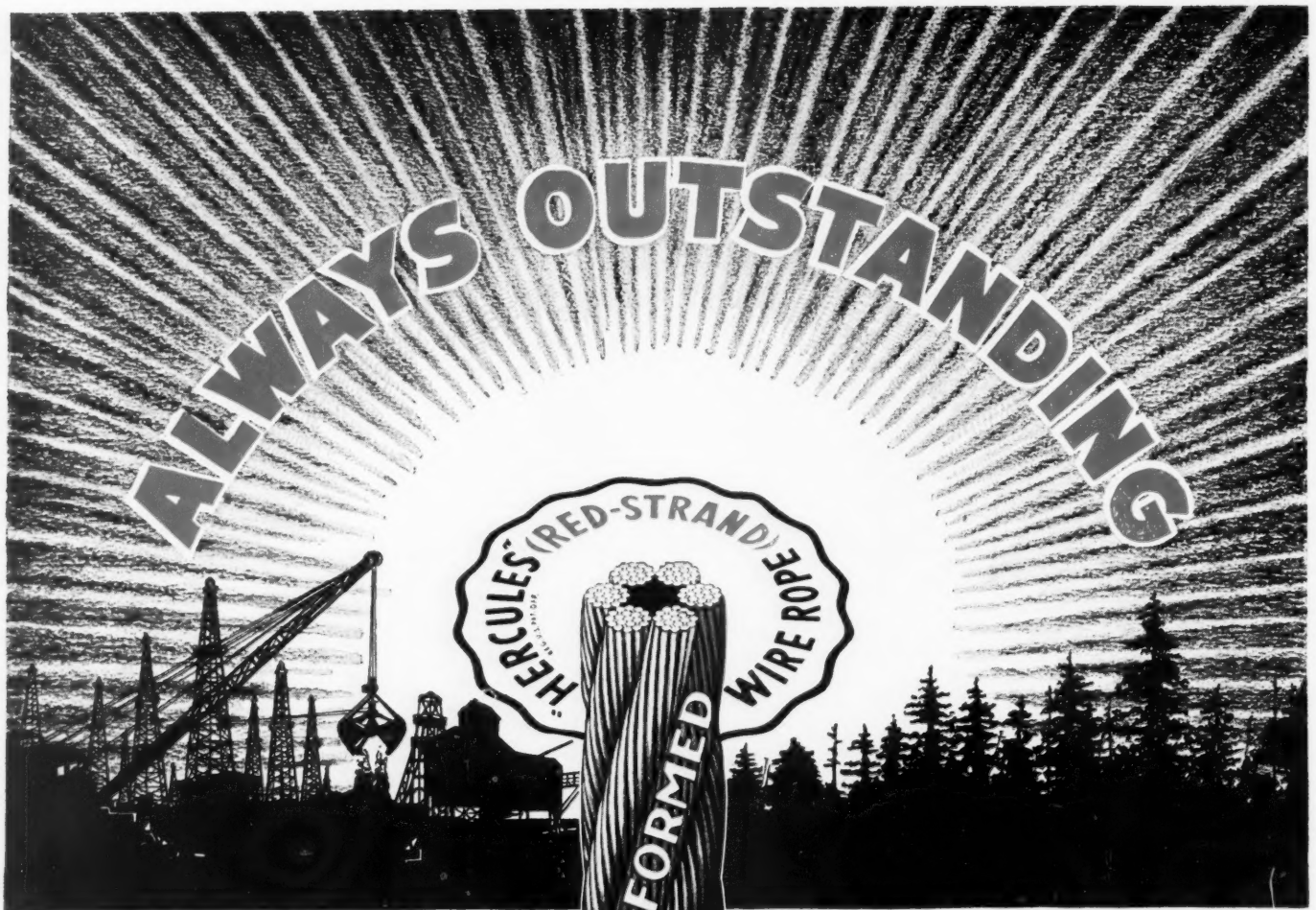
**3/8 YARD**

# 10-B

**BUCYRUS  
ERIE**

SOUTH MILWAUKEE, WISCONSIN

you make the  
most of  
**EVERY HOUR**  
with a  
**BUCYRUS-ERIE**



In every field of industry—be it construction, oil, mining, road building or in the timberlands, there is always some product that is preferred because of its dependability... and in Wire Rope, "HERCULES" (Red Strand) has continued to enjoy an "outstanding" reputation for over 68 years.

Naturally, there are many reasons for this recognition. First of all, is our own high standards established for the selection and testing of the materials that go into its making.

This unwavering policy, backed by unexcelled

manufacturing facilities, research and experience, has resulted in universal acceptance of the (Red Strand) as a dependable guide to follow when buying Wire Rope.

Being made in a wide range of constructions—Round Strand and Flattened Strand... Preformed and Non-Preformed... there is a style exactly suited to meet *any* heavy duty demand.

Call on our engineering department any time for specific recommendations—they'll welcome your inquiries.

MADE ONLY BY

# A. LESCHEN & SONS ROPE CO.

WIRE ROPE MAKERS  
5909 KENNERLY AVENUE

ESTABLISHED 1857  
ST. LOUIS 12, MISSOURI, U. S. A.

NEW YORK 6 • • • 90 West Street  
CHICAGO 7 • • • 810 W. Washington Blvd.  
DENVER 2 • • • 1554 Wazee Street

SAN FRANCISCO 7 • • • 520 Fourth Street  
PORTLAND 9 • • • 914 N. W. 14th Avenue  
SEATTLE 4 • • • 3410 First Avenue South



# AIR PLUS **JAEGER COMPRESSOR**



BACK OF EVERY JAEGER "AIR PLUS" IS THE MOST COMPLETE SERVICE



IN THE CONSTRUCTION FIELD — TOOLS • ENGINES • COMPRESSORS



SERVING USERS ON-THE-SPOT IN 128 CITIES OF THE U.S. AND CANADA

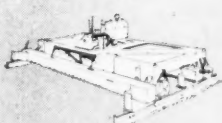
Ask for complete catalog JC-5 and name of your nearest Jaeger air-station.

THE JAEGER MACHINE COMPANY, Columbus 16, Ohio

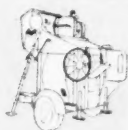
REGIONAL	8 E. 48th St.	226 N. LaSalle St.	235-38 Martin Bldg.
OFFICES	NEW YORK 17, N.Y.	CHICAGO 1, ILL.	BIRMINGHAM 1, ALA.

## JAEGER

*Engineered* EQUIPMENT



JAEGER  
Spreaders, Finishers



"SPEEDLINE"  
Concrete Mixers



"SURE PRIME"  
Contractors Pumps

"DUAL-MIX" TRUCK MIXERS, AGITATORS — HOISTING  
ENGINES, SELF-RAISING TOWERS — CONCRETE AND  
BITUMINOUS PAVING EQUIPMENT



Power from the engine of the Haiss Loader to countershaft—to second shaft and upper shaft, and to the axle for Loader travel—is transferred by means of Diamond Roller Chains and Sprockets.

As is the case  
with other Leaders

## The Drives on Haiss Loaders are...DIAMOND Roller Chains

Steady uninterrupted operation is a first requirement of loaders and materials handling equipment.

The drives for such machinery therefore must be uniformly dependable—with the reserve strength to run continuously and unfaillingly. They should not permit slipping and must retain highest efficiency for top output.

Such drives, as the great leaders in the



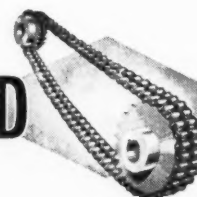
construction machinery industry agree, are DIAMOND Roller Chain Drives.

The long experience of Diamond engineers dates back to the earliest developments of modern made-in-America construction machinery—known universally as the most effective and efficient in the world. Practical drive recommendations and engineering assistance are yours for the asking. DIAMOND CHAIN COMPANY, Inc., Dept. 418, 402 Kentucky Avenue, Indianapolis 7, Indiana. *Offices and Distributors in All Principal Cities.*



The Drives from motor to countershaft—and for conveyor flight on this portable are Diamond, also.

# DIAMOND



# ROLLER CHAINS



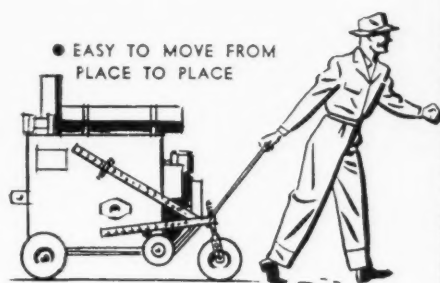
# KEEP GOING *this winter*



• ENOUGH HEAT  
FOR THREE ORDINARY  
5-ROOM HOUSES

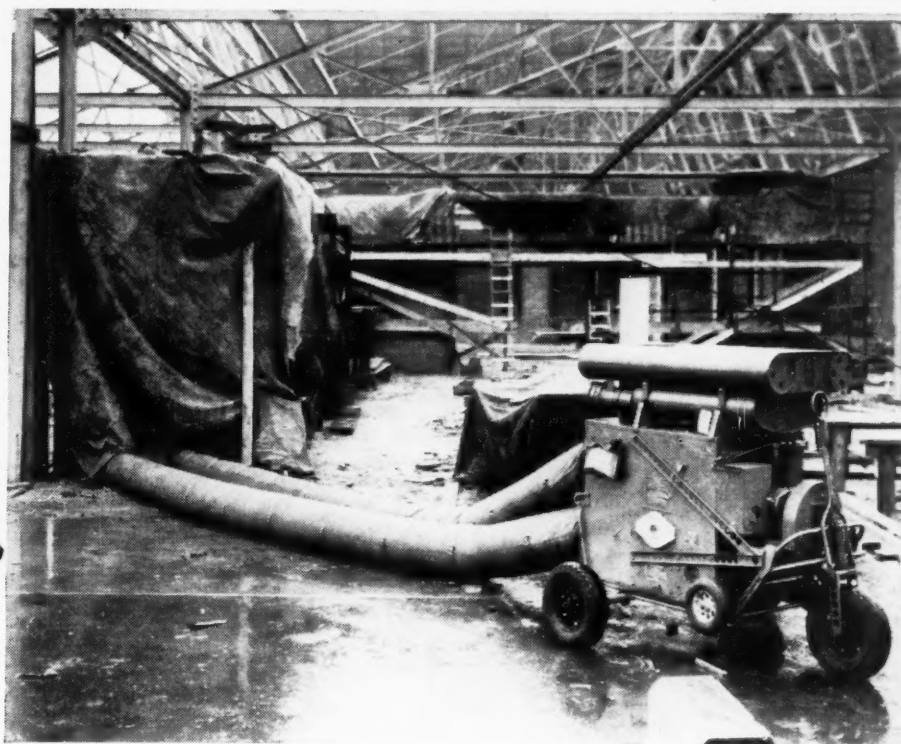


• NO SMOKE . . .  
NO SOOT . . .  
NO OPEN FIRE



• EASY TO MOVE FROM  
PLACE TO PLACE

with portable **HEAT!**



## The HERMAN NELSON Self-Powered Heater cuts "Winter Waiting Time"

### can be used for

**SPACE HEATING** of temporary buildings, storage sheds, repair shops, buildings under construction.

**PREHEATING** engines and all kinds of mechanical equipment.

**SPOT HEATING** of materials, workmen, machinery, storage tanks, tools.

**THAWING** frozen areas and machinery, wheels, gears, transmissions, caterpillars, etc.

**DRYING** and curing of materials, plaster, paint, mortar, concrete, etc.

**VENTILATING** and heating of manholes, tunnels, box cars, ship holds, confined areas of all kinds.

Quick heat . . . lots of it . . . is yours with this portable, self-contained heating unit. Volumes of heat . . . where you want it . . . fast! Burns gasoline by a new safe method . . . requires little attention. The HERMAN NELSON Self-Powered HEATER makes you practically independent of winter cold on any construction job. Jobs go ahead faster, men are able to work better — you can fill contracts on time with this versatile heat source. Easily handled by one man.



**THE HERMAN NELSON CORPORATION**  
for 40 years manufacturers of quality heating and ventilating products  
**MOLINE, ILLINOIS**

*Sand, gravel, hardpan, decomposed shale were moved by Tournapulls on Connecticut's Wilbur Cross Turnpike.*



***TOURNAPULLS*** put N. D. Maselli Corp.  
**33 DAYS AHEAD OF SCHEDULE**  
**in first 52 days of operation**



*Pulling loaded out of cut, Tournapull starts one-mile haul to fill.*

**LETOURNEAU**  
PEORIA, ILLINOIS



***TOURNAPULLS***

**FOR LOWEST NET COST PER YARD**

7  
N. D. Maselli Corp.  
360,000 sq. yd.  
and  
ville  
pike  
Tournapulls  
At this time  
old  
progr  
Job  
Tournapulls  
average  
plann  
abled  
2-mile  
to the  
ords i  
Bonol  
This h  
use o  
materi  
push



Both snatch and pusher help cut loading time to the minimum . . . assured big pay loads.



Tournapulls spread fast in even layers, maintained accurate grades on the fill.



## 7 rigs deliver 220,000 yards of tough materials in 52 ten-hour days on one-mile haul

N. D. Maselli Corp. of Bloomfield, Conn., had 360,000 tough yards of gravel, sand, hardpan and decomposed shale to move on the Talcottville section of Connecticut's Wilbur Cross Turnpike . . . assigned 90% of total yardage to its Tournapull fleet.

At time job was checked it was 52 working days old and 33 days ahead of the state's required progress.

Job records show that during this period, 7 Tournapulls moved 220,000 cubic yards on an average one-way haul of one mile. Good job planning and efficient equipment operation enabled each rig to average 5 trips per hour on the 2-mile cycle . . . deliver over 60 yards per hour to the fill. "Wouldn't believe our Tournapull records if I hadn't been on the job myself," said Gus Bonola, Superintendent for Maselli.

This high rate of production was made possible by use of: (1) LeTourneau Rooter to break up hard materials for fast loading, (2) both snatch and push loading help, (3) good haul road maintenance

through steady use of motor grader and water wagon, and (4) correct preventive maintenance practice.

### Total downtime only 1½ hours per Tournapull

This not only paid off in increased production, but further reduced net cost per yard by cutting equipment downtime and maintenance to the minimum. Total downtime was only 10½ hours for the entire fleet of Tournapulls in 52 days of hard, fast operation.

### What does this kind of production mean on your job?

Job records like Maselli's prove that the Tournapull is a high production tool — capable of delivering big yardages fast at lowest-net-cost-per-yard. It will pay you to check with your LeTourneau Distributor for further details about Tournapull profit possibilities on your work.



Tournapull, Rooter — Trade Mark Reg. U. S. Pat. Off. R89

***Has what it takes—***  
**... FOR HEAVY LOAD • STEADY PULL!**



When the load is heavy and the pull steady, make sure the crankcase lubricant is designed to serve efficiently for hard service. Ineffective lubrication can promote costly mechanical breakdown.

Sinclair OPALINE TBT MOTOR OIL is made for continuous operation under heavy load at high engine temperatures. The crude is selected for stamina and refined for durability.

TBT is further fortified in the refining to provide what it takes to keep engines clean, hold crankcase accumulations down and prevent bearing corrosion. For top engine performance under heavy load and steady pull, choose OPALINE TBT MOTOR OIL... and for Diesels use Sinclair TENOL.

**SINCLAIR LUBRICANTS-FUELS**

FOR FULL INFORMATION OR LUBRICATION COUNSEL WRITE SINCLAIR REFINING COMPANY, 630 FIFTH AVENUE, NEW YORK 20, N. Y.



# FOURFOLD SATISFACTION! Maryland Contractor Cleans up on Excavating and Erection Jobs with ~~FOUR~~<sup>five</sup> DIFFERENT BAY CITY CRANES



Here is the newest addition to William A. Harting's (Landsdowne, Md.) fleet of BAY CITY equipment—a 20 ton capacity CraneMobile for steel erection with long boom and jib for handling heavy loads with stability, safety and ease of operation that come from fine engineering and sturdy construction.



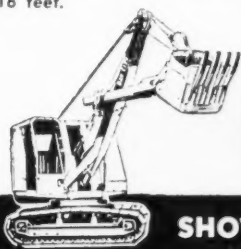
This husky  $\frac{3}{4}$  yard back-hoe working on a storm sewer project gets by in tight spots because of flexibility in handling, easy maneuverability and long reach of better than 31 feet. Oh yes!—and digging depth more than 18 feet.



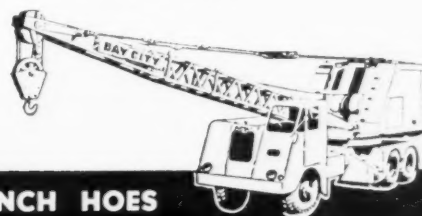
Mr. Harting will tell you his  $\frac{3}{4}$  yard shovel is a consistent money-maker. Basement digging is only one of many excavating jobs which can be handled swiftly and efficiently. Ask him about the BAY CITY design features which add up to low-cost yardage.



For clean-up work and other odd jobs, this convertible crane is loading trucks with  $\frac{3}{4}$  yard clamshell bucket. If you would like full particulars on BAY CITY equipment, see your nearest dealer or write direct to BAY CITY SHOVELS, Inc., Bay City, Michigan.



## BAY CITY



SHOVELS • CRANES • DRAGLINES • TRENCH HOES

SEE YOUR NEAREST DEALER for Bay City excavating and material handling equipment in sizes from  $\frac{3}{8}$  to  $1\frac{1}{4}$  yards having crane rating up to 20 tons. Both crawler and pneumatic tire mounting.



## AIRMASTER

... the symbol of unexcelled  
portable-compressor performance  
— a symbol of efficiency and  
dependability that saves money

Look for the compressor that carries this trademark. Watch it operate, and see why it is the greatest postwar development in portable air-compressor design. Notice that the engine speed doesn't fluctuate widely. That is Le Roi's patented, fuel-saving Econotrol\* at work—it adjusts engine speed to the job demand for air. There is no rapid acceleration or deceleration—fuel economy is greater, and compressor and engine life longer. You benefit in another way, too—the Econotrol maintains higher average working pressures, enabling air tools to do more work.

Yes, you get more for your money when you buy an AIRMASTER. You not only save on fuel and maintenance, but you also receive the advantages of increased man-hour production.

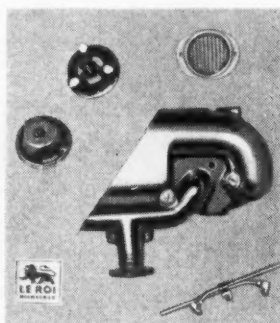
AIRMASTERS are built in all mounting styles, and in sizes ranging from 60 to 500 cfm. You can select the unit best suited for your job. Furthermore, you can have famous Le Roi gasoline-engine or diesel power.

Get complete information from your Le Roi dealer, or write for bulletins.



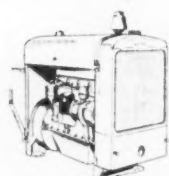
### More LE ROI Firsts

Intercooler Relief Valve • Patented Econotrol • Centralized Control Panel • Ignition Insulators • Elastic Stop Nuts •

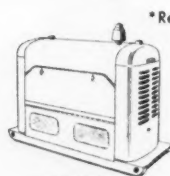


AIRMASTER Magnaflex Valves • Traffic Reflectors • Water-cooled Manifold • Precision Fittings and Tubes.

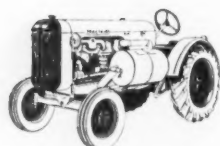
\*Reg. U. S. Pat. Off.



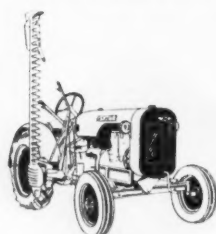
Le Roi  
Heavy-duty engine



Le Roi  
Engine-generator set



Le Roi  
105 Tractair®



Le Roi  
Centaur Mower

AIRMASTER\* — Portable Air Power at Its Best.

# LE ROI COMPANY

MILWAUKEE 14, WISCONSIN

New York • Washington • Birmingham • Tulsa • San Francisco



ANY WAY YOU FIGURE IT . . .

## BUCKEYE TRENCHERS

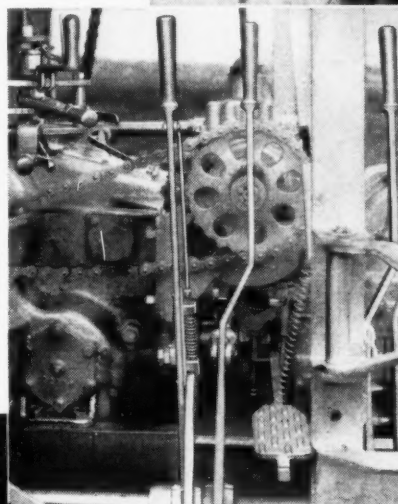
GIVE YOU LOWER COSTS AND GREATER PROFIT

When you compare trenching costs . . . and include everything—initial and operating costs, maintenance, and average number of feet trenched per hour, shift or day, you'll find a Buckeye's the best investment you can make.

There's a good reason for this. Buckeye engineers discovered long ago that slow speed operation and down-time kill profits in trenching . . . that initial cost is relatively unimportant. Buckeye Trenchers are therefore designed for greatest maneuverability, to give you fast, steady operation . . . are ruggedly built to stand up year after year in trenching everything short of solid rock. Such design and construction standards are maintained even though slightly higher initial costs may result.

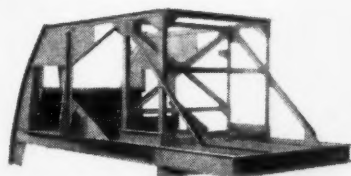
The Buckeye boom-type utility Trenchers shown here are built for all kinds of trenching work, where the ability to undercut and cut close is as essential as the ability to maintain grade and curve. For complete information write for Trencher Catalog.

**BUCKEYE TRACTION DITCHER CO.**  
Findlay Ohio



**Buckeye**  
Boom Type  
**TRENCHERS**

Models  
120 and 160



All controls are conveniently located in front of the operator's seat. Rugged all-welded frame construction assures rigidity and proper alignment.



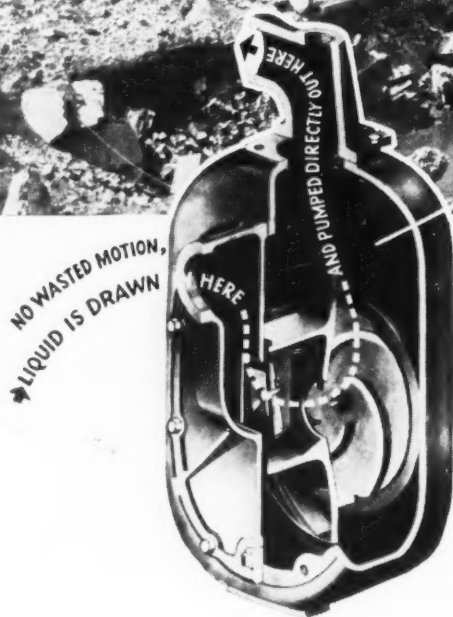
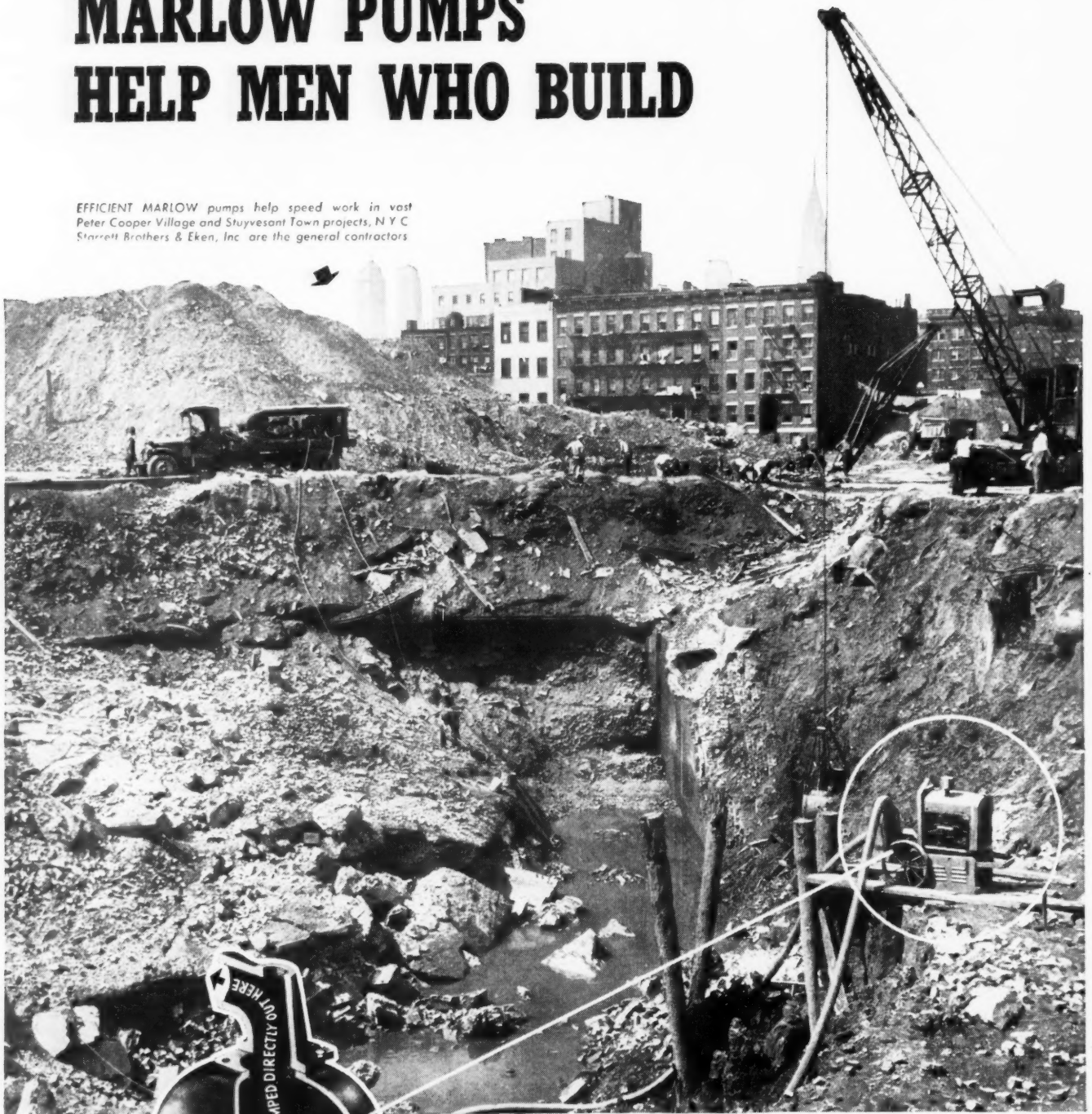
"TOMORROW'S WAY IS YOURS TODAY"

# Buckeye

CONVERTIBLE SHOVELS—ROAD WIDENERS—TRENCHERS—MATERIAL SPREADERS—FINEGRADERS

# MARLOW PUMPS HELP MEN WHO BUILD

EFFICIENT MARLOW pumps help speed work in vast Peter Cooper Village and Stuyvesant Town projects, N.Y.C. Starrett Brothers & Eken, Inc. are the general contractors.



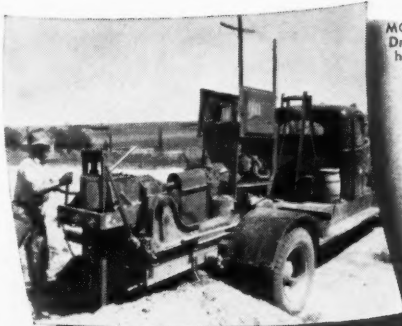
The simple trouble-free construction of a Marlow Self-Priming Centrifugal Pump enables it to prime and reprime positively and automatically. A Marlow has no ports, by-passes or other auxiliary priming devices that reduce pumping efficiency; it is soundly engineered and ruggedly made. For fast, dependable, thrifty pumping, you can't beat a Marlow.

Marlow literature is interesting and will be forwarded promptly on request.

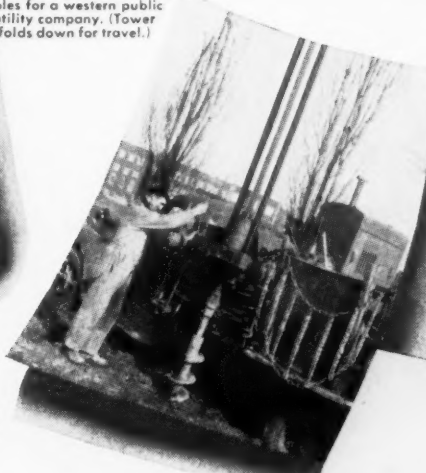
**MARLOW PUMPS • RIDGEWOOD, N. J.**



# Buda earth drills...in use all over the country ...a type for every drilling job!



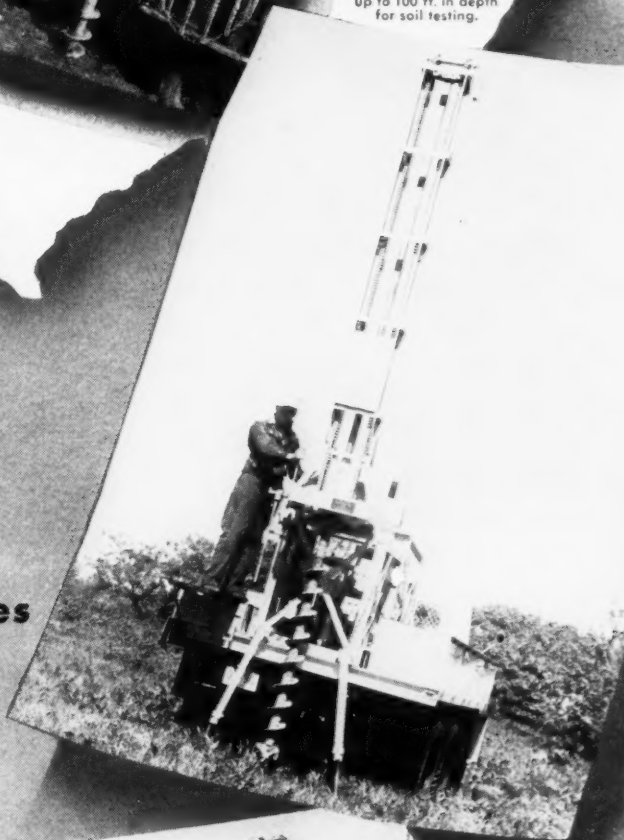
MODEL HBE Truck-mounted Drill putting down pole holes for a western public utility company. (Tower folds down for travel.)



MODEL HBD Side-mounted Drill handling a large midwest fence post job.



MODEL HBB Trailer-mounted Drill used for power pole work in Oklahoma.



MODEL HBM Deep Hole Drill, drilling small-diameter holes up to 100 ft. in depth for soil testing.



Showing the portability of the MODEL HBM Drill...tower lowers to traveling position, allows 100% mobility.

*...backed by*  
**nation-wide  
parts and service facilities**

Buda Earth Drills are being used successfully by contractors in all sections of the country, in all types of soil, for rapid, efficient hole drilling. They are used in a great variety of hole-drilling operations, including Pole Line Construction, Bridge Building, Foundations, Pre-boring for Piles, Drainage and Sanitation, Tree Planting, Guard Rail and Highway Construction and countless other applications. Buda Earth Drills are available in four models to meet your particular drilling requirements. They are capable of digging clean, uniform holes—in sizes up to 42" in diameter to a depth of 24 feet, and small diameter holes up to 100 feet in depth.

See your nearest Buda Distributor for complete details.

# BUDA

15430 Commercial Avenue  
HARVEY (Chicago Suburb) ILLINOIS

# MAGIC CARPET



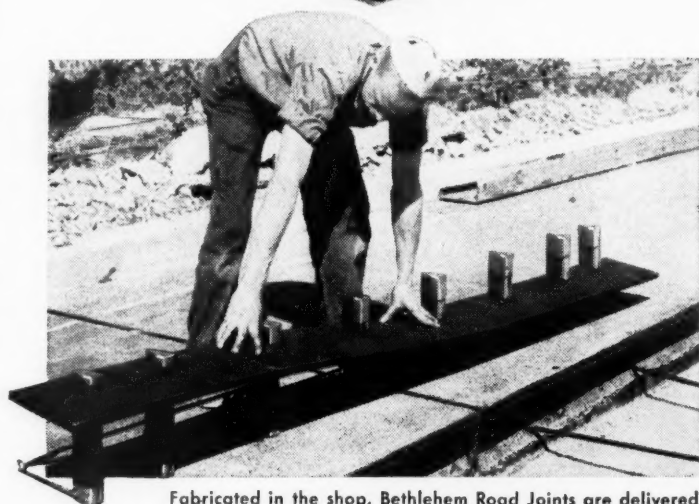
The photograph above was taken during construction of the four-lane Paxtonia-Manadahill, Pa., section of U. S. 22, a modern magic carpet connecting New York City with Cincinnati, Ohio. This stretch of the 665-mile highway was built by Buffalo Gravel Corp., Camp Hill, Pa., under the supervision of Ralph Daniels. Bethlehem road steels were used throughout.

Bethlehem supplies every form of steel needed in the construction of a highway or highway bridge. When you order steel for a highway contract from Bethlehem your order is handled as a unit, with shipment scheduled so that each individual item arrives at the project as it is needed. Costly follow-ups are avoided, and bookkeeping is minimized.

Many contractors make a habit of ordering all their road-steel needs from Bethlehem. Bethlehem Steel service saves them time and money. Next time you need steel for a highway job, or a bridge, put your requirements up to us.

**BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.**

*On the Pacific Coast Bethlehem products are sold by  
Bethlehem Pacific Coast Steel Corporation*



Fabricated in the shop, Bethlehem Road Joints are delivered ready to install, with dowels, cops and chairs assembled into one complete unit.

## Leading Bethlehem Highway Products

Road Joints • Reinforcing Bars • Bar Mats • Guard Rail • Guard Rail Posts and Brackets • Wire Rope and Strand • Hollow Drill Steel • Fabricated Structural Steel • Sheet and H-Piling • Spikes • Timber Bridge Hardware Bolts and Nuts • Tie Rods



## STEEL for HIGHWAYS ★



# LOW OPERATING COST

Modern engineering principles built into every LIMA shovel, crane and dragline make low operating costs possible.

# INDEPENDENT OPERATIONS (WITH ★ AIRCONTROL)

Hoist, swing, travel and boom up or down simultaneously—an extra value feature.

# It's all in the Name

## MOBILITY

The crawlers are long and wide to afford sure footing on soft or uneven ground. They steer from the cab with cab in any position.

## ANTI-FRICTION BEARINGS

All drums and important shafts rotate on anti-friction bearings—the modern means of reducing costly friction.

★ DOES NOT APPLY TO THE 3/4yd. PAYMASTER



LIMA LOCOMOTIVE WORKS, INCORPORATED  
Shovel and Crane Division

LIMA, OHIO, U. S. A.

**SURE-GRIP** for maximum  
traction on drive wheels

**ALL-WEATHER EARTH  
MOVER** for drawn vehicles  
and general traction

**HARD ROCK LUG** for super-  
stamina in all rock work

Because  
it pays off big  
in low-cost  
high-hour  
service —

**MORE YARDS ARE MOVED ON**

**GOOD YEAR**

**BUY and SPECIFY  
GOOD YEAR  
— it pays!**

**OFF-THE-ROAD TIRES  
THAN ON ANY OTHER KIND**

Sure-Grip, All-Weather—L.M.'s The Goodyear Tire & Rubber Company



# Construction Methods

WALDO G. BOWMAN, Editor

Volume No. 28

DECEMBER, 1946

Number 12

INTERRUPTION TO TRAFFIC on the Reading Co.'s New York Short Line was held to a minimum by a speedy bridge replacement job when, in less than 4 hr., a 150-ton bridge was substituted for an inadequate 75-ton span. Speed was essential in replacing the old structure, erected in 1892 at Newtown Junction, Pa., as normal traffic over the line is about 56 trains per day.

Both bridges are double-track, through plate-girder structures, each with three girders on a single span of 65 ft. The new bridge, complete with open timber floor, and with girder ends resting on railroad-rail skids, was erected on falsework immediately south of the old structure. Timber falsework was also placed on the north side to receive the old span, which was jacked up for placing of skid rails under the bearings and to raise the track to new bridge elevation.

## Bridge Spans Skidded Off and On Abutments In Fast Move

By JOHN E. QUAIL

Philadelphia, Pa.

It required 37 min. with blocks and tackle to slide the old bridge 32 ft. north on to the prepared falsework. Two hand-crabs, mounted on the new bridge and operated by compressed-air wrenches, furnished pulling power through lines to triple-sheave blocks fastened to the old bridge structure and anchored at the falsework ends. After shifting the hauling lines, the new span was skidded into place in 44 min. The bridge was jacked up to remove skids and to set bearing plates and anchor bolts, and was lowered to its permanent position 3 hr. and 54 min. after the old bridge had started on its way out.

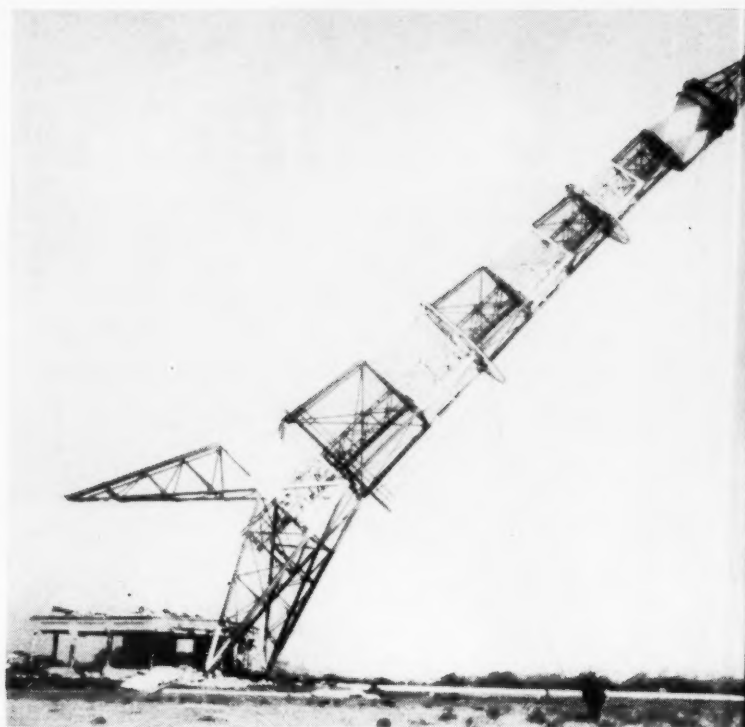
The work was done by the Reading Co. and American Bridge Co. under the joint supervision of E. L. Gosnell, Reading's chief engineer, and Eugene Mowlds, Jr., of American Bridge.

Page 71

LESS THAN FOUR HOURS elapse during replacement of inadequate bridge with new \$60,000 structure for Reading Railroad. Hand crabs powered by air-driven wrenches skid old span on to falsework and slide new bridge (rear) into place.



# THIS MONTH'S NEWS REEL



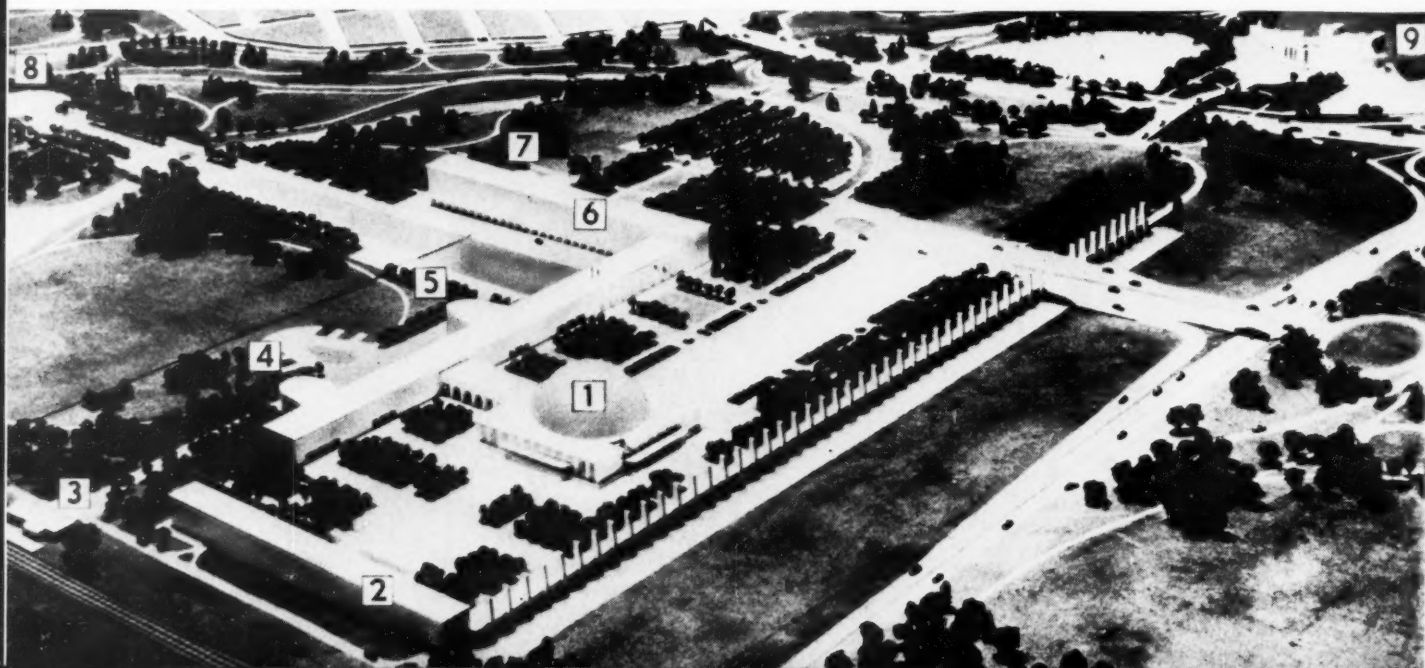
↑  
DIRIGIBLE MOORING MAST hits dust at Detroit. Built 20 years ago at cost of \$250,000 and used but once, Henry Ford's 215-ft. 250-ton tower is wrecked for scrap. One of three tripod legs was cut loose and tower was simply pulled over by lines attached to group of winch trucks. Dearborn Machinery Movers Co. did job.

Associated Press Wirephoto

PROPOSED PERMANENT HOME (below) of United Nations on World's Fair site at Flushing Meadow, N. Y., is represented in drawing submitted to U.N. by City of New York. Buildings numbered are: (1) Home of General Assembly; (2) Offices and Missions; (3) Railroad Station; (4) Economic and Social Council; (5) Security Council; (6) Offices; (7) Trusteeship Council; (8 and 9) Amphitheaters.

Press Assn. Photo

Page 72







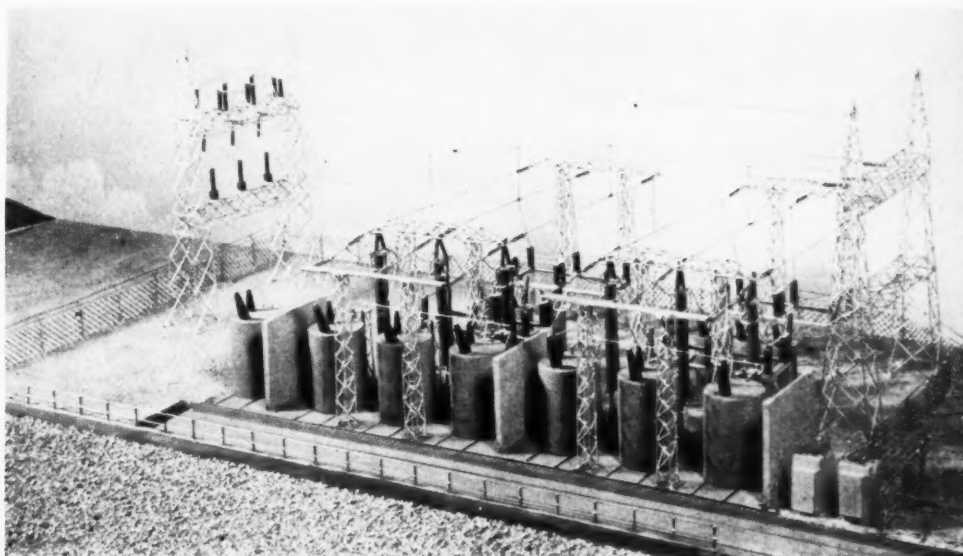
**FOUR-ROOM COTTAGE** is moved across California desert from Eagle Mountain camp to Gene camp to house Colorado River Aqueduct employee. Driver of truck had orders to keep house constantly moving over 100-mi. route so he would not find it occupied by house-hunting family before reaching destination.



**HOUSES BY AIR** may be commonplace in future. Here, in first flight to determine potential use of air transportation in speeding prefabricated houses from factory to builder, sportsman's cabin is flown from Dover, Mass., factory of E. F. Hodgson Co. to Dayton, Ohio, by Capital Airlines-PCA.

British Combine Photo

**STRUCTURAL MODEL**, on scale of 1 to 96, shows switchyard layout for power plant at Anderson Ranch Dam, now under construction by Bureau of Reclamation on South Fork of Boise River in Idaho. Present plans call for installation of switches and equipment to handle output of two 15,000-kva. generators, with provisions for additional equipment at left if third generator is installed.

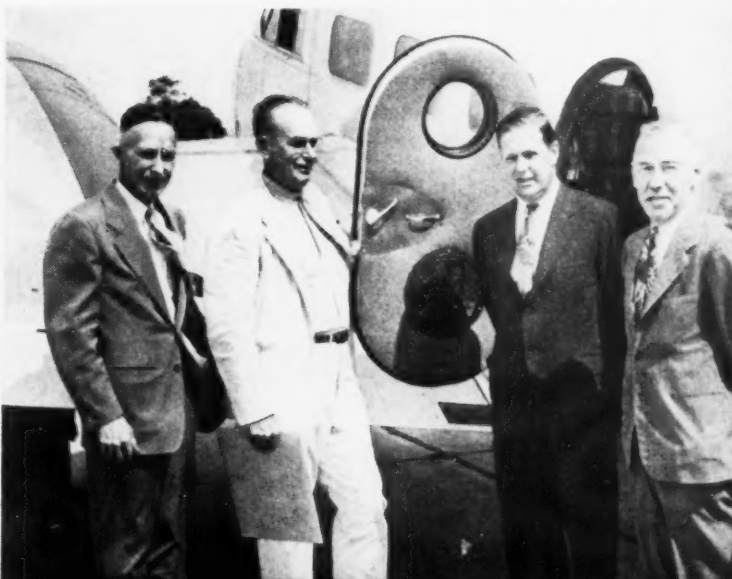


**BRONX-WHITESTONE BRIDGE** (below) is being altered and strengthened by Woodcrest Construction Co., of New York, under \$1,312,000 contract with Triborough Bridge Authority. Roadway is being widened into present sidewalk area, new walks will be cantilevered outside of cables, stiffening truss is being added.

Aeme Photo



**MAIDEN FLIGHT** of five-passenger plane (below), bought by John A. Roebling's Sons Co., of Trenton, N. J., for closer contact with customers, covered 10,000 mi., with stops in Ohio, Utah, Montana, California, Arizona, Texas, Louisiana and Georgia. Company executives on board were (left to right): **FOREST S. BURTCH**, manager of wire rope sales; **CHARLES M. JONES**, vice-president in charge of public and industrial relations; **CHARLES R. TYSON**, president; and **ERNEST C. LOW**, vice-president in charge of sales.



# TOOLS

## THE SMALL ARMS OF CONSTRUCTION

SHOVELS, SCRAPERS, bulldozers, cranes, graders, pavers, and the like are the heavy artillery, the battleships and the big bombers of construction. Small tools represent the small arms and the hand grenades in the construction army. It is no more possible to carry on construction work without small tools than it is to fight a war without small arms and ammunition.

Because they are prosaic and inconspicuous and frequently highly expendable, small tools are taken for granted by some construction men, to be bought, used and discarded without much thought or attention. Such is not the case with the smart operator, however, for he realizes that each and every small tool must be used in connection with the most expensive item on the job—a skilled mechanic. Therefore, he selects and buys his tools with care, he furnishes the right tool for every task, he maintains, issues and collects them in proper manner, and finally, he discards tools worn or damaged beyond economical repair when they hamper, rather than aid, the mechanic's efforts.

To stress the importance of small tools on construction work, *Construction Methods* once again devotes this special section to their presentation through three articles and a pictorial display of field applications.

### Take Care of Small Tools



CARE OF TOOLS starts with good toolboxes. Nello L. Teer Co. mounts toolbox for highway job on pneumatic roller, so box rolls along as work progresses.

JUST BECAUSE they are small is no reason to neglect small tools on construction. Just because they are often a stock item, to be passed out as needed, is no reason always to regard them as expendable and not worth taking care of. Just because they are relatively low in cost, as compared with major pieces of equipment, is no reason to let them be used carelessly or after they are worn to an unsafe, unworkable stage. Small tools are aids to high-priced craftsmen, and as such deserve proper care, maintenance and use.

First, of course, is the proper selection of tools. Each is designed for a specific task, or range of tasks. Take hand shovels, for example. There are square points and round points, long and short handles, spades, shovels and scoops in this classification. Obviously, each class has its proper use, and trying to use the wrong type of shovel, or any other tool, is a waste of expensive manpower. Mechanized tools, are air, electric or gasoline powered, and their proper selection depends upon the kind of power best suited to the job. Planning the job should include consideration of small tool use for full efficiency of overall operations.

Procedures in charging out or assigning tools to the job vary among contractors. Frequently, tools are stock items issued from a central warehouse or purchased direct in quantity for the job. In such cases, the tools are often "sold" to the job, with credit allowed upon return to the warehouse depending upon the salvage value. Sometimes the more-expensive mechanized tools are "rented" to the job, charged out in the same manner as major equipment. One large



contractor draws the distinction between "sale" and "rental" in this fashion: Any item having a serial number is "rented," all others are "sold." In general, contractors issue tools returnable to a warehouse at the end of shift by some sort of badge system, by which the item is charged against the individual workman. This system encourages responsibility on the part of the mechanic to see that the tool is returned to its proper place. Stamping of the firm name or monogram on each tool discourages petty thievery.

A most important phase in efficient use of small tools is Good Housekeeping. This means that in the central warehouse and job toolhouse, provision must be made for proper storage and handling. Clean, orderly toolhouses are indications of a well-run job. Conversely, a messy toolhouse with shovels, rope, muddy boots, drills, saws and dirty tarps all piled up in confusion on the floor indicates the whole job is haywire.

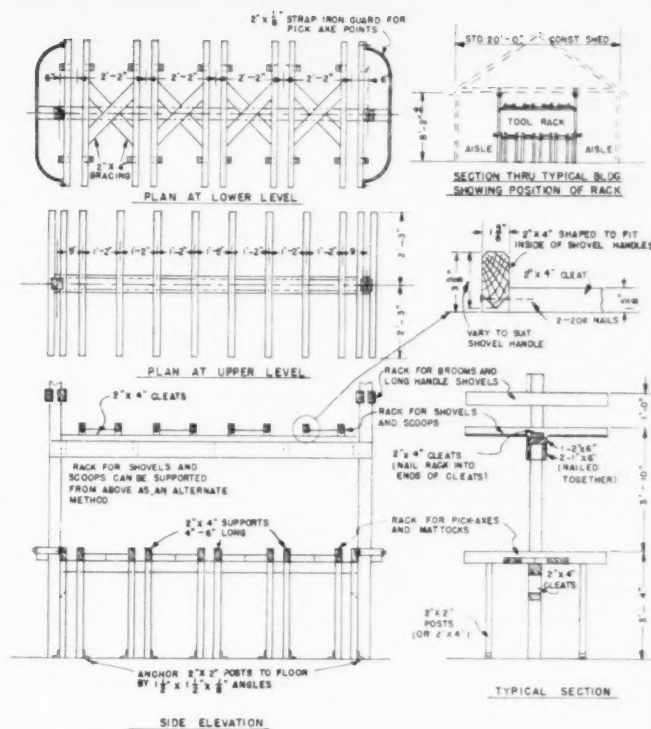
Good housekeeping on the job outside the toolhouse is also good practice. Toolboxes should be located at strategic points around the job for temporary storage of tools not actually in use. Tools carelessly thrown on the ground between uses become lost, broken, and dirty. Good housekeeping is an incentive toward efficient operation.

#### Mechanized Tools Need Special Care

Mechanized small tools are relatively delicate. They are not built to withstand the abuse taken by tractors and power shovels. Therefore, it is well to provide small boxes, or shelves in large toolboxes, where power drills and saws and like units may be kept when not in use. Platforms or skids that keep small pumps and generating sets out of the mud will prolong their life and increase their efficiency. Many mechanized tools, especially those driven electrically, can't stand water, so canvas or wooden protection against rain is necessary to avoid damage.

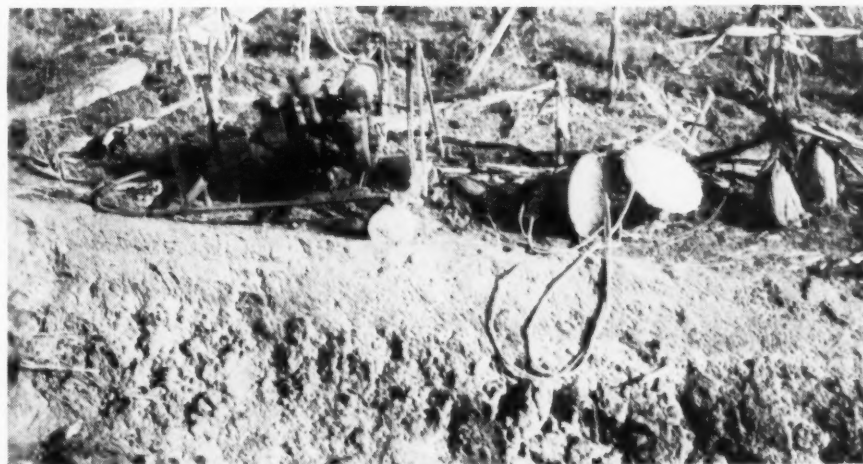
Lastly, and most important, all small tools must be kept in good repair. Hand tools, such as saws, hammers, shovels and picks, must be kept sharp and clean if they are to be used to best advantage. Of course, for safety and for efficient operation, handles must be kept tight and sound. Wrenches with worn jaws are not only a nuisance, they are dangerous. Cords and switches on electrical units take an awful beating and require frequent inspection to keep the machines in good working order. Air hose and couplings likewise are subject to abuse and become dangerous as well as inefficient if not properly maintained. Proper lubrication, of course, of all mechanized tools is a prime requirement for good operation.

These are but a few suggestions for the proper care and use of small tools. Many more could be cited, but they can all be summed up in this one statement: The smart construction man does not neglect the small tools on his job.



**GOOD HOUSEKEEPING** means properly-stored tools. Here is neat safety tool rack, designed by Construction Section, National Safety Council, that will store picks, shovels and other handled tools in orderly manner.

**TARPAULINS** need special care if they are to give good service. They should be carefully stored to prevent snagging, and should be dried out after becoming wet to avoid rotting. This tarp protects truckload of bulk cement.



**MECHANIZED SMALL TOOLS** deserve better treatment than this small generator and floodlight set carelessly tossed into muddy field. Equipment like this should be mounted on skids or on platform.

# Importance of Small Tools Emphasized by Paving Job



**FIRST TASK** in widening 32-ft. street to 44 ft. is removal of interfering trees on either side. Here Seymour Smith Co. pruner with 12-ft. handle trims tree branches.

**UP A TREE** but well equipped, workman (below) is trimming tops before trees are felled, thus preventing damage to property and interference to traffic. Tools include Warren Tool Co. axe, Disston 27-in. hand saw, and length of 1/2-in. manila line.



THE PART SMALL TOOLS play in construction is well shown by a fast schedule on a \$93,000 project of widening and repaving about one half mile of 20th St. in the northwest section of Washington, D. C. Because of the varied operations and the large amount of hand

labor required, those in charge for the Wilmoth Paving Co., the general contractor, point out that by having readily available a large variety of small tools all operations went forward at a fast pace.

The project extends from Pennsylvania Ave. to New Hampshire



**PICK A GOOD PICK** and work goes faster as in this excavation for utility trench. Widening old Washington, D. C., street necessitated extensive utility relocation.



**MODERN SHERLOCK HOLMES** with Davis combustible gas indicator traces leaks in gas mains after old pavement is removed.

**CLEAN SWEEP** with long-handled, fiber-bristled broom (below) keeps sidewalks clear of cut limbs and branches as trees are removed.



**20-LB. SLEDGE** (below) breaks old concrete pavement into convenient size for removal with power shovel.





## SMALL TOOLS ON CONSTRUCTION



← **UTILITY TRENCH** is cut by I-R paving breakers with moll-point steel as workman with long handle shovel removes broken concrete from cut.



→ **HONEST CHISELERS** using chisel-edge steel in Ingersoll-Rand paving breakers cut smooth joint between old asphalt pavement remaining in place and that to be removed.

Ave. on a 32-ft.-wide street whose oldest pavement dated from 1893. Some sections of the old pavement consisted of bituminous block, other portions were bituminous treated macadam surfaced with sheet asphalt, and still another section was portland cement concrete with a sheet asphalt top. The heavy traffic of recent years and use of the street by inter-city buses made replacement of the old pavement necessary and widening of the street desirable.

The final decision was to increase the paved width of the street to 44 ft. by removing a row of trees at either side. To accommodate the



**AIR IS LIGHTWEIGHT**, but it packs a wallop in this Ingersoll-Rand backfill tamper compacting utility trench to prevent later settlement.



**HARD-WORKING LABORER** finds good tools lighten his tasks. Here he uses No. 4 Baldwin Pinnacle short-handled shovel to feed excavator.

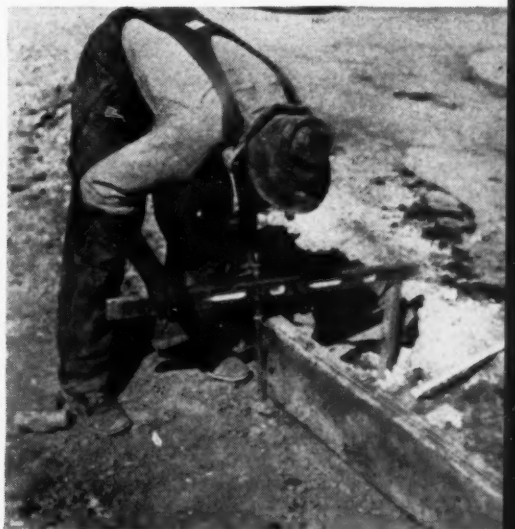
**ENGINEERS** too need good tools for efficient layout. Below, survey crew checks hubs with 14-oz. Dietzgen plumb bob and 100-ft. Lufkin steel tape.



**COMMERCIAL TOOLS** will do better job, but when they're unobtainable ingenious contractors devise their own. Below, job-built maul loosens manhole sheeting for easy withdrawal.



**GOOD CONTRACTING** requires everything to be kept on level, so here, 36-in. Empire hand level (below) checks concrete pavement slab forms.





**WHEELBARROWS** are always useful around construction jobs. In this one, mortar is mixed for water supply manholes built of precast concrete rings.



**IT'S AN OLD "SAW,"** but workman is only as good as his tools. Good tools are good investment.



**GOOD RULE** to follow is to get good tools and plenty of them. Here, Stanley 6-ft. folding rule checks accuracy of sub-base.



**STEEL ROAD FORMS** are oiled by pressure-type sprayer, a big improvement over old bucket and brush that were wasteful of time and material.



**PRIOR TO POURING** concrete road slab, cast-iron tops of sewer manholes are coated with asphalt applied with long handled brush.



**CONCRETE BASE** is cured with wet burlap, shown here being carried to slab on wheelbarrow with Firestone tire.

**SPIKE IS DRIVEN** with sledge (below) to position and hold expansion joint assembly for concrete base slab.



**SUBGRADE IS COMPACTED** by small Buch hand roller (below) where restricted space makes mechanical compaction impractical.



**WATER SUPPLY** for paving project is obtained from fire hydrant through Kieley Mueller pressure reducer. Check valve prevents back-flow of water into hydrant.







**CONCRETE SLAB** 8 in. thick is floated after screeding. Except at edges where small hand floats are used, long handled type proves most efficient.



**LONG-HANDLED BROOM** with steel wire bristles scores concrete slab surface upon which 2½ in. of hot-laid sheet asphalt will be placed.



**CONCRETE CURB** and gutter combination, poured within steel forms, is finished with trowels and edging tool.

heavier loads the streets of Washington now carry, an 8-in. reinforced concrete pavement topped with 2½ in. of hot-laid sheet asphalt was selected for the new surfacing.

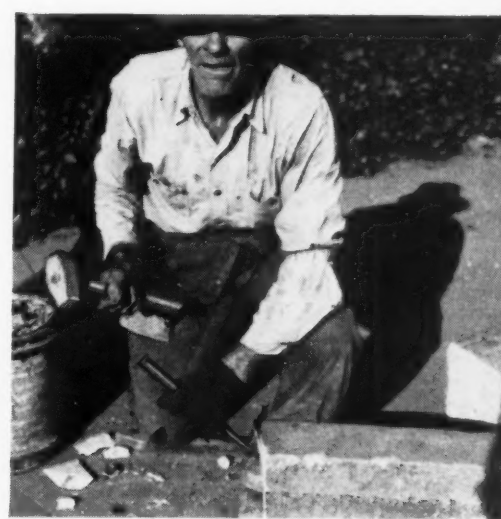
Such a construction plan required a variety of work, including those operations illustrated.

The work was done for the highway department of the District of Columbia. For the department H. G. Whitehurst is director, L. M. Hedgcock, construction engineer, J. A. Sencindiver, assistant construction engineer, and J. F. Hoover, supervising the field work.

*(Continued on next page)*



**A HAPPY WORKMAN** is a good workman, and supplying him with good tools properly designed to do job keeps him happy. This bricklayer grins while trimming sidewalk brick with Plumb Victory hammer.



**CHISEL AND SLEDGE** trim granite curb stone to size. Old curbing is reused where possible.

**SIDEWALK SLAB** is scored with Best Made edging tool (below, left) before final finishing with steel and wood trowels (below, right).



**MANHOLE COVERS** (below) are cleaned of sheet-asphalt street surfacing with No. 2 Bronco shovel and ordinary broom.

## IMPORTANCE OF SMALL TOOLS...Continued



**PAVER** places 2½-in. layer of sheet asphalt over 8-in. concrete base slab. Mechanical equipment is supplemented by shovels, rakes, and tampers.



**GOOD WORKMAN** takes care of his tools, as evidenced by protecting plank on which grade stake is being sharpened with Belk-nar 2-lb. hatchet.



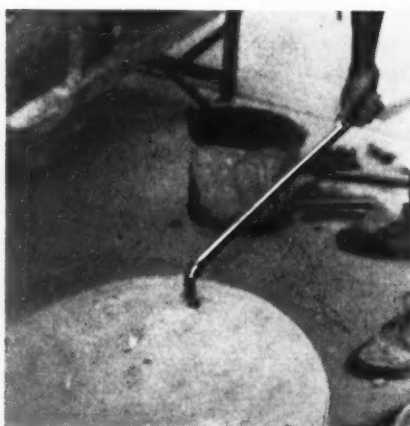
**DIETZ MONARCH** kerosene lanterns with red globes provide effective warning at temporary barriers closing off street.



**SIDEWALK JOINT** with few dowels and cork expansion filler is set in place. Sledge drives supporting pins.



**UNEVEN SPOTS** at joint between lanes of asphalt paving are leveled with hot smoothing iron.



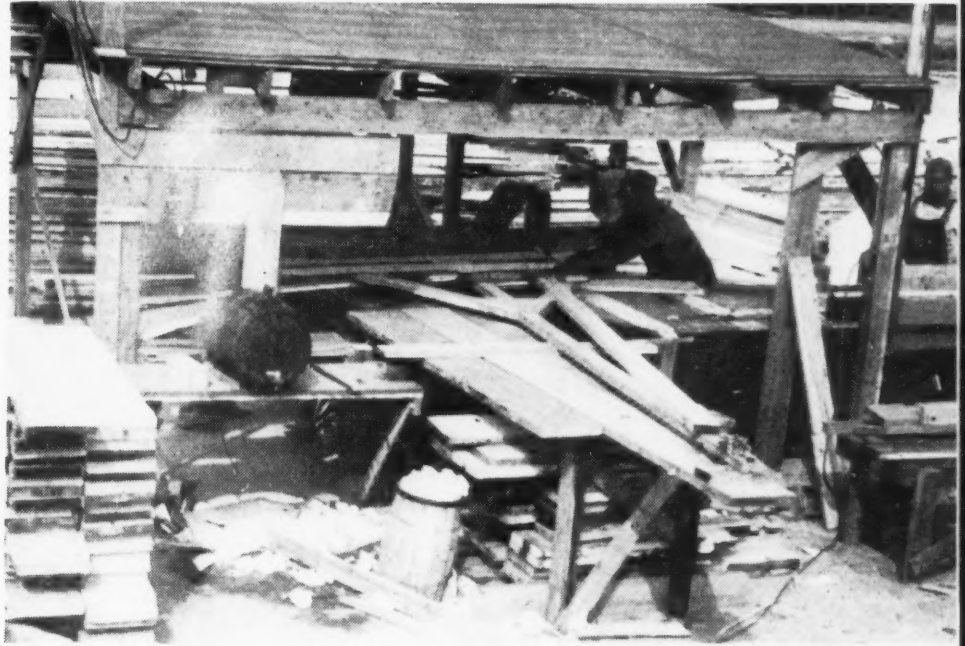
**SPECIAL CROWBAR** prevents injury to fingers while lifting sidewalk manhole cover. Device is steel bar bent to L-shape.

### Small Tool Classification on Washington Paving Job

Hand saws	Concrete hand floats	Hand pliers
Nail hammers	Pneu. pavement breakers	Short-handle shovels
Hand sledges, 10-20 lb.	Pneu. asphalt spades	Long-handle shovels
Heavy mauls	Pneu. tampers	Asphalt mops
Picks	Hand tampers	Oil sprayers
Kerosene lanterns	Brick hammers	Hand rollers
Single-bitted axes	Gas indicators	Steel-bristle brooms
Lightweight hatchets	Hand levels	Stone hammers
Tree pruners	Wooden rules	Stone chisels
Rubber-tired wheelbarrows	Steel tapes	Manhole crowbars
Reducer and check valves	Plumb bobs	Heavy crowbars
Concrete edging tools	Water buckets	Long-handle rakes
Concrete trowels	Fire hydrant wrenches	Smoothing irons



# Special Saw Rigs Speed Curved Cuts



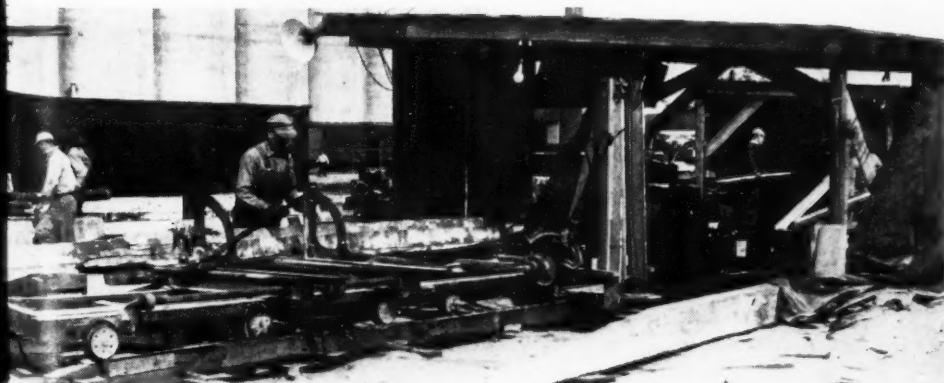
SWING JIG feeds lumber stock into circular saw to cut wales to proper arc for building slip forms used on cylindrical bins of grain elevator at Toledo, Ohio.



CURVED WALES are tacked in position on jig table to start construction of slip forms.

POWER SAWS, those handy small tools indispensable today on construction work, have been made even more efficient and useful by two contractors through the aid of special rigs. On two projects, one for a grain elevator and the other for GI student housing, contractors have improvised special horizontal-swing jigs to speed the cutting of arcs with power saws. As shown by accompanying pictures, the Macdonald Engineering Co., Chicago, mounted its swing template to feed stock into a 14-in. table saw to cut material for sliding forms, on a Toledo elevator job. At Minneapolis, the Madsen Construction Co. fastened an 8-in. portable saw at the outer end of an arm which revolved about a pin on a jig table to cut wallboard to fit the arched roofs of Quonset huts.

For the grain elevator, the contractor obtained 500,000 b. ft. of form lumber by setting up a saw-mill on the job to resaw salvaged timber shipped in from demolition jobs. Pictures show the 54-in. log



LOG CARRIAGE feeds salvaged timber into 54-in. circular saw, driven by 60-hp. electric motor, producing boards for forms.

## SMALL TOOLS ON CONSTRUCTION



ADJUSTED TO DESIRED ANGLE, hand-operated electric power saw bevels edge of form stock for Macdonald Engineering Co. grain elevator project in Toledo.



SURFACING RESAWED LUMBER, 24-in. planer powered by 20-hp. electric motor dresses boards for form use.



RADIAL ARM revolving about pin on jig table guides 8-in. Skilsaw in cutting wallboard to proper arc for Quonset huts.

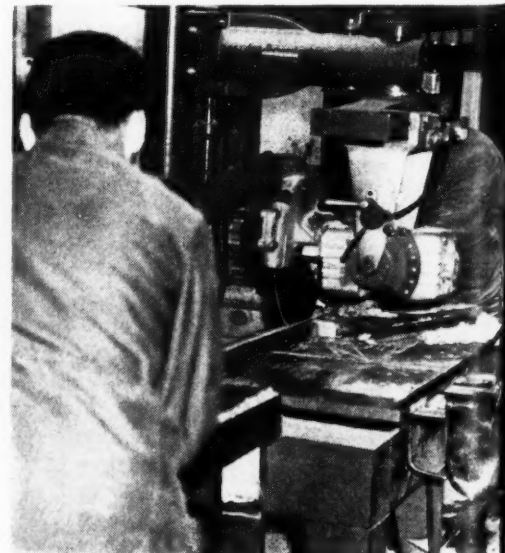
saw and 24-in. planer used on this project.

Job devices of subcontractors helped to speed work on the Madsen project; building temporary housing for married GI's at the University of Minnesota. In the job plumbing shop of the Belden-Porter Plumbing & Heating Co.,

CASING MATERIAL (below) for door casings on GI temporary housing project is ripped by Red Star Multiplex 16-in. saw in job shop. Same saw cuts all lumber stock required for 364 dwelling units on project. Most of lumber is reclaimed from dismantled ordnance plant.



← SMALL STOCK of job-cut lumber is kept on hand to avoid delaying carpenter crew. D. O. (Doug) PROEHL, superintendent in charge of project for Madsen Construction Co., inspects supply in stock. Each metal barrack contains two living units.







AGAINST FLOUR CITY BACKDROP, temporary housing for married GI students at University of Minnesota nears completion under drive by FPHA and contractor. Each Quonset hut provides two fully-equipped dwelling units.



PLUMBING SPIDER in project shop of Belden-Porter Plumbing & Heating Co. facilitates pre-assembly of soil pipe and vent stacks. Several vertical assemblies are in progress at same time along this wall. Branches are pre-assembled at table.

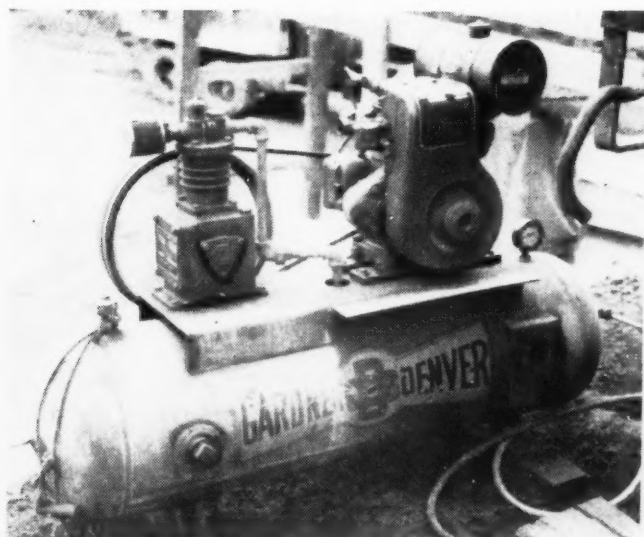
Minneapolis, the subcontractor pre-assembled soil pipe and vent stacks in a spider consisting of a row of strap jigs for vertical assembly along one wall. Smaller components were pre-assembled at a table.

On the same job, a 16-in. radial arm saw in the general contractor's woodworking shop ripped, cross-cut, mitered and beveled all the lumber stock needed for 364 dwelling units in 50 Quonset huts and 132 metal barracks. The housing

came in packaged units from Army and Navy surplus at two embarkation ports, Baton Rouge, La., and Tacoma, Wash.

The temporary housing project for GI's at the University of Minnesota is only one of a number being built in three states by the Madsen Construction Co. under a fee contract with the Federal Public Housing Authority. A total of some 1,840 units is included in the contract. Leon Archibald is project engineer in charge for FPHA.

## Typical Applications of Small Tools



SMALL AIR COMPRESSORS find many uses on the job, such as this Gardner-Denver furnishing air for loosening bulk cement in hopper cars on a North Carolina soil-cement stabilization project.



PNEUMATIC IMPACT WRENCHES save labor time in tightening and loosening bolts, especially on steel erection. This one is made by Chicago Pneumatic.

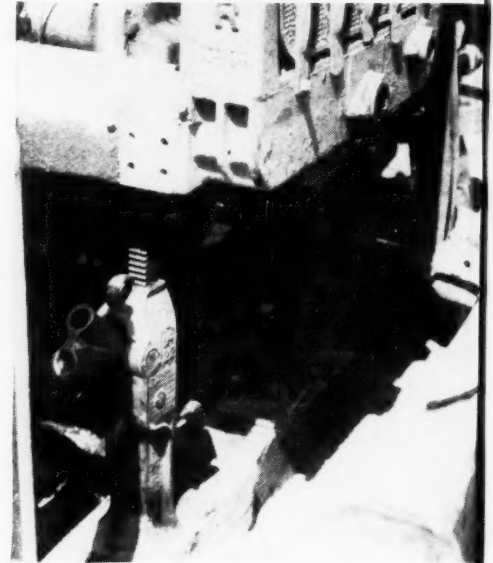
## TYPICAL APPLICATIONS OF SMALL TOOLS



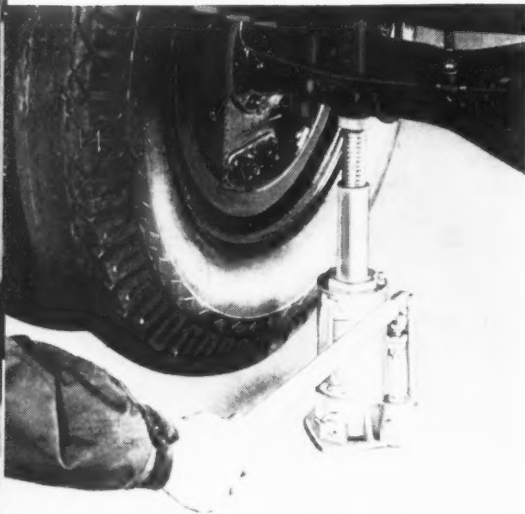
**PUNCHING HOLES** in steel members is no longer tedious task, for Mine Safety Appliances Co. has come out with this portable punch fired by blank cartridge, exploded by tapping firing pin. MSA hard hat is also important safety accessory.



**LABORIOUS DRIVING** of wood sheetpiling is eliminated by this neat Thor air-powered sheetpiling driver fitted with detachable steps to allow operator to ride sheeting if desired.



**RATCHET JACKS** are indispensable around construction work. Here couple of Simplex jacks hold up tractor undergoing repairs.



**TRUCK TIRES** are easy to handle with aid of Blackhawk hydraulic jack. Many other uses can be found for these handy tools around job.



**THERE ARE ALWAYS HOLES** to drill, and an electric drill, such as this handy Mall rig, makes task easy.

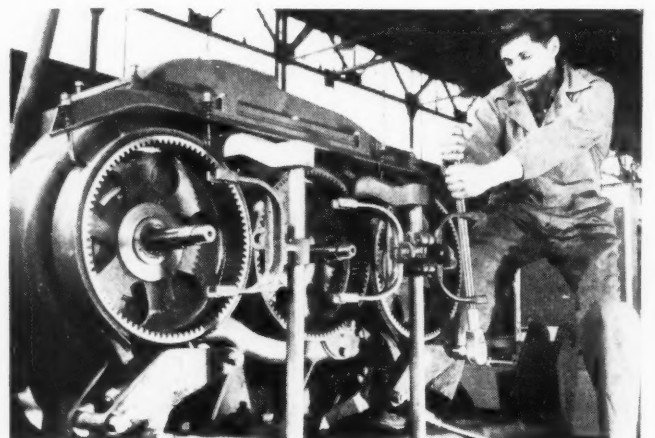


**OLD RELIABLE DIAPHRAGM PUMP** is still tops for making dry holes out of wet ones. Winkelman dries up culvert foundation on his New York Throughway contract with small Marlow pump.



← **TEMPORARY BUILDINGS** must be erected on every job, and Utah Construction Co. finds this portable Skil-saw useful in trim-

→ **HEAVY EQUIPMENT REPAIR** is never-ending task, but special wrenches such as this Snap-On ratchet socket, help a lot.





## SMALL TOOLS...Continued



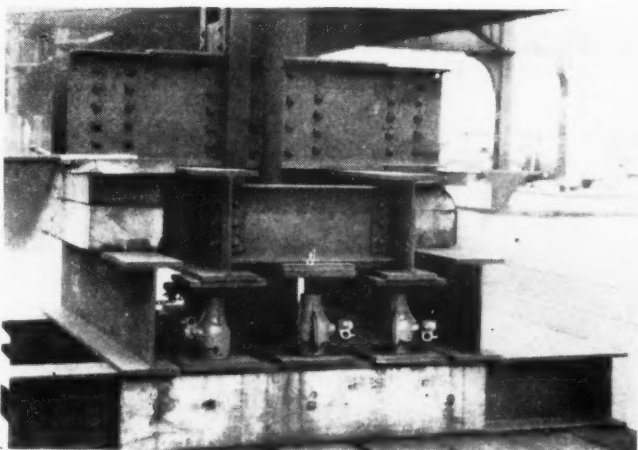
**MASS HOUSING** means fast construction, and here trio of Walker-Turner radial saws is speeding up work by cutting studs and rafters on roller conveyor that leads direct from carload of lumber.



**UTAH CONSTRUCTION CO.** put this De Walt power saw out in field at Davis Dam to save carpenter time in cutting up lumber.



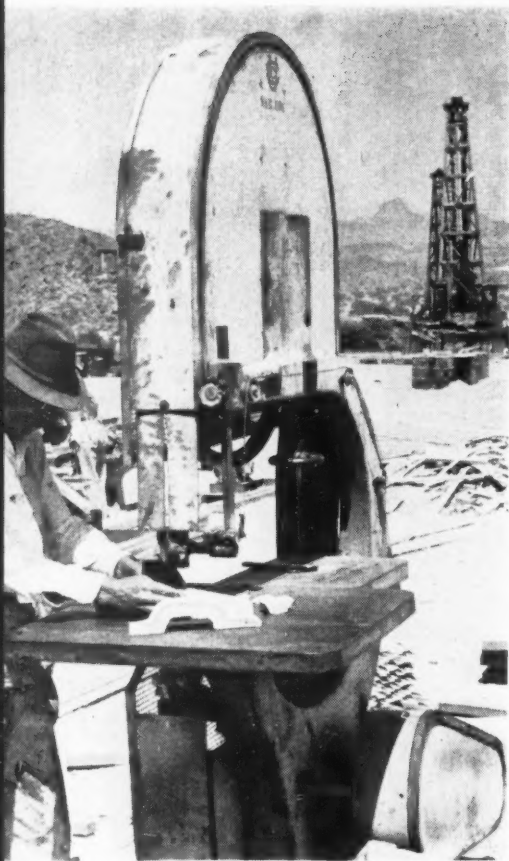
**RIPPING FORM LUMBER** is hard work by hand, but D. W. Winkelman makes it easy by putting Construction Machinery table saw on his New York Throughway job near Syracuse.



CONTRACTORS take odd jobs in stride when they have small tools as an aid. Geo. A. Fuller Co. uses battery of Black & Decker electric chipping hammers to remove mortar joints in repairing St. Patrick's Cathedral in New York.

SHORING AND UNDERPINNING calls for jacks of husky, dependable type. These Buda ball-bearing journal jacks are holding up elevated column in Chicago.

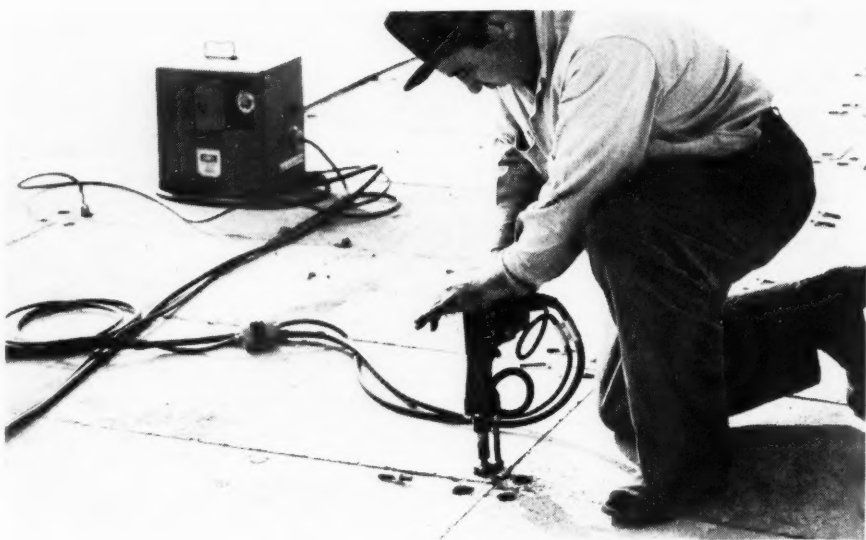




UTAH CONSTRUCTION CO. planted this 5-hp. American Saw Mill Machinery Co. bandsaw right out on job at Davis Dam to handle scores of woodworking tasks.

## TYPICAL APPLICATIONS OF SMALL TOOLS

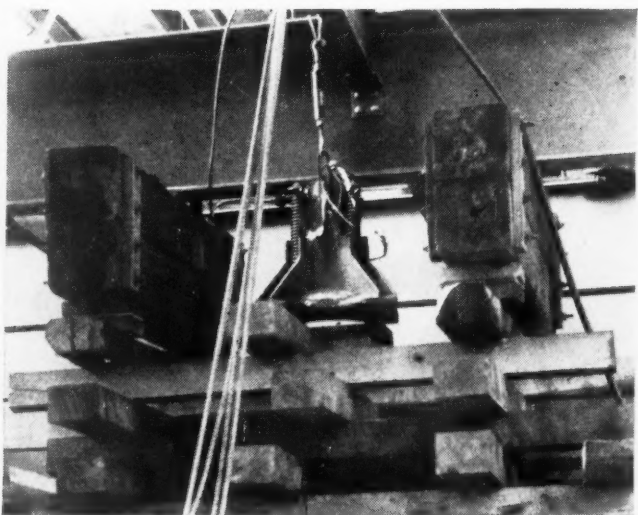
CONSTRUCTION CAN'T OPERATE without pumps, large and small. This 1½-in. Home-lite gas pump supplies water to mixer on building job.



NEWEST DEVELOPMENT in small tools is Nelson automatic welding gun which welds hanger and fastener studs to steel work in fraction of second to hold siding, roofing or insulation in place. Here gun welds studs to purlins to hold Haydite roof slabs on Oakland, Cal., building.



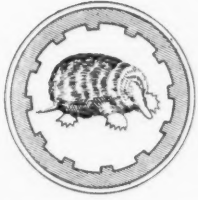
FLAME CLEANING is modern way to remove rust and scale from steel. Here Linde torch prepares Chicago subway column for painting.



LIFTING AN ENTIRE PRE-ASSEMBLED FLOOR is an easy job if you use jacks and cribbing, such as Walter H. Stanley did on Chevrolet plant in Tarrytown, N. Y. He did trick with Watson-Stillman spring-retracted hydraulic jacks.



# Moles Nominate Prominent Contractors For Annual Awards



THE MOLES, organization of New York tunnel and heavy construction men, have nominated Thomas Crimmins, New York, and Harry W. Morrison, Boise, Idaho, to receive the society's annual awards for outstanding construction achievement. Crimmins, head of Thomas Crimmins Contracting Co., veteran New York contracting firm, receives the member award, while Morrison, president and general manager of Morrison-Knudsen Co., Inc., one of the West's great construction companies, is designated for the non-member award. Presentation of the citations will be made at the Moles annual dinner in New York next February.

## Harry W. Morrison

From water boy to head of the nation's biggest construction firms has been the career of Harry W. Morrison, president and general manager of Morrison-Knudsen Co., Boise, Idaho. Born on an Illinois farm in 1885, he went to work for Bates & Rogers Construction Corp. in 1902, after finishing a business college course, as water boy, later becoming a timekeeper. From 1906 to 1912 he was with the Bureau of Reclamation, and during this period obtained a civil engineering degree from a correspondence school.

In 1912 Morrison joined Morris Knudsen as partner in a contracting venture that was destined to become one of the most successful in American construction history. When Boulder Dam was up for bidding he was instrumental in combining a group of contractors to take the job under the name of Six Companies Inc. That move set the pattern for successive combinations that have built the great projects of the West and successfully carried out the incredible war construction jobs at home and overseas.

Today Morrison-Knudsen is working in China, in the Pacific, in Alaska, in Mexico, Canada, Afghanistan and Brazil. The firm holds scores of contracts throughout the United States for dams, railroads, irrigation projects, log-

ging, strip mining and buildings. It is also engaged in cement, steel, and equipment manufacturing.

All of these far-flung activities are directed by Harry Morrison, designated as "one of the greatest builders the world has ever seen," by an admiring high-ranking Navy officer who worked with him on war projects in the Pacific. The choice of the Moles in selecting him for their highest tribute is echoed by CONSTRUCTION METHODS, for we proudly present him as "Cited for Service" on page 91 of this issue.

ON JOB, where he prefers to be instead of his home office, HARRY MORRISON, designated for 1947 non-member Moles award, talks with one of his superintendents.



MOLES name dean of New York contractors, THOMAS CRIMMINS, as recipient of 1947 member award for outstanding construction achievement.

## Thomas Crimmins

Thomas Crimmins represents the third generation of his family to carry on the construction firm founded by his grandfather, Thomas, in 1848. His father, John D. Crimmins was with the company from 1864 to 1894. Thomas E., an uncle, joined the firm in 1873. The fourth generation of Crimmins is now associated with the company in Robert, a son, and A. Holmes Crimmins, a nephew.

Col. Crimmins, as he is known from his World War I military (Continued on page 168)

# Barge-Mounted Multiple Lead Driver



**BARGE-MOUNTED CRANE** sets 14-in. pile section in one of 13 leads of driving rig on pier construction job at Edgewater, N. J. Extreme length of piles (up to 214 ft.) necessitates field splicing in leads.

**THIRTEEN** may be an unlucky number to some persons, but when it represents 13 leads on one pile-driving barge it means plenty of time saved in spotting and driving piles. J. Rich Steers, Inc., New York contracting firm, developed and is using such a rig to drive steel

piles up to 214 ft. long for the substructure of a Hudson River pier at Edgewater, N. J. As the leads are mounted to correspond with the spacing of the piles in a bent, the multiple-lead barge need only be spotted once per row. The rig is particularly advantageous where

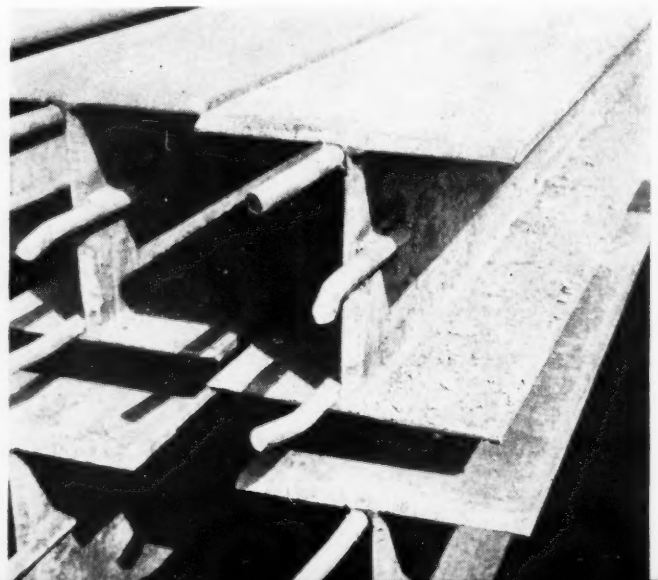
long piles must be field-spliced from shorter lengths after partial driving because, with many piles set up in the leads, welding and driving operations may be carried on simultaneously.

Being built for Seatrain Lines, Inc. for their specialized opera-

Page 88

**WELDER SPLICES** lengthening section to partially driven pile (below) in leads while crane sets up additional piles or drives those previously spliced. Diesel powered Lincoln welding machines on scow furnish current.

**BENT FINGER PINS** (below) are welded to bottom of lengthening pile section to hold it in position on top of previously driven piece while splice is made. Flanges and web are beveled for full-section welded splice.





# r Handles 13 Piles Without Moving

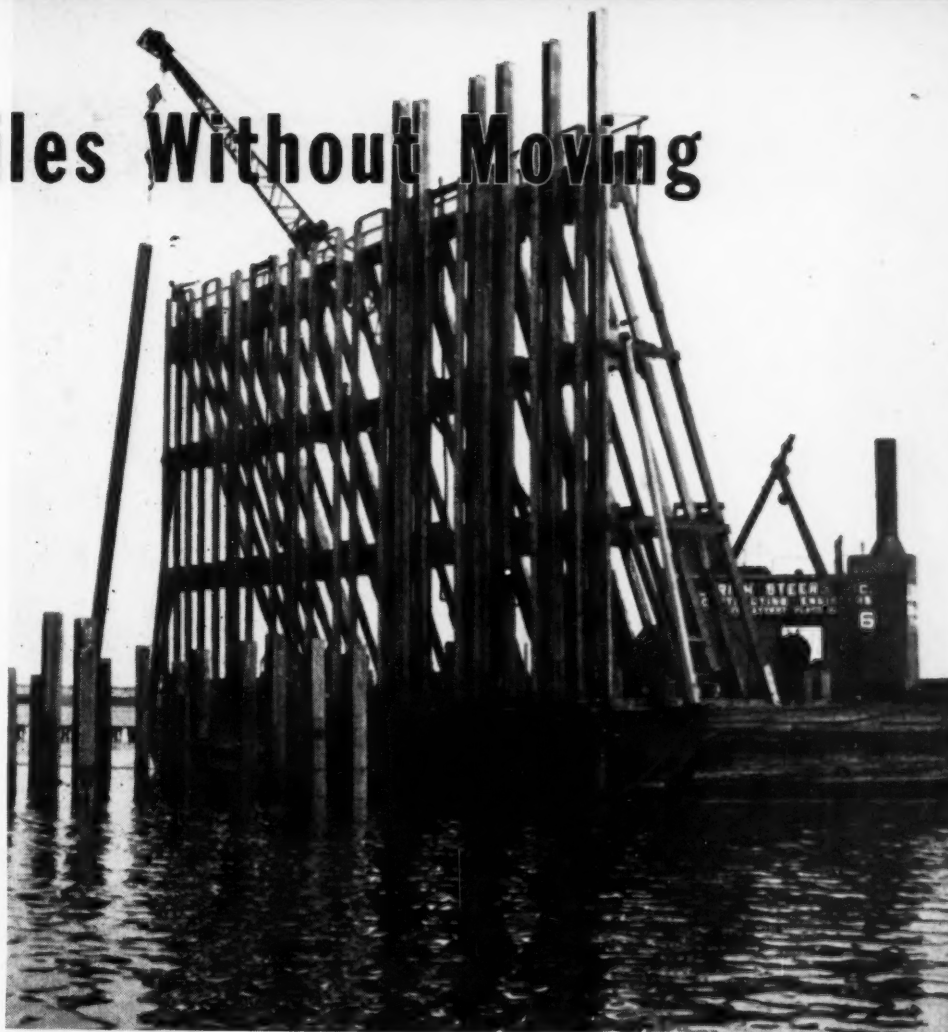
tions in transferring loaded freight cars between ship and shore, the pier will be 90 ft. wide and 600 ft. long supported by 644 14-in. H-piles weighing 89 lb. per ft. Typical bents, on 21-ft. centers, consist of 13 plumb piles with two additional piles battered 1 on 3 adjacent to the center pile to take side thrust. Each pile is topped with a 1½-in. welded plate which will be encased in 3-ft.-square concrete cross caps to support a 10- to 12-in. reinforced concrete deck slab.

## Driving Rig

Key unit in the piledriving operations is a 13-lead frame 45 ft. high which is mounted on a 32x100-ft. deck scow. The leads are 6x12-in. timbers with back legs and bracing of 6x10's and are set on one side of the scow with lead spacing the same as that of piles in a bent. A 90-hp. boiler on the scow supplies steam to a McKiernan-Terry 11B3 hammer, as well as to deck engines handling spotting and mooring lines. Working in conjunction with the lead rig, and moored alongside it, is a barge-mounted, 30-ton Wiley whirley with 103-ft. boom that places piles in the leads and handles the driving hammer.

Pile lengths vary from 110 to

**CONTRACTOR FOR PIER** substructure and deck, and firm that developed time-saving driving equipment, is J. Rich Steers, Inc., of New York. Personnel includes (below, l. to r.): J. MALCOLM, general superintendent; W. D. MALCOLM, chief engineer; H. W. LEHMKUHL, job superintendent; and A. C. ELLIOTT, general foreman.



**MULTIPLE-LEAD FRAME**, mounted on scow, positions complete bent of 13 steel piles for splicing and driving. Rig must be spotted only once per bent.

Page 89

**SLOPING FRAME** positions brace piles to 1 on 3 batter and holds sections while splice is made and piles are driven. Frame rests on piles in two bents and is cabled to them to prevent sliding or overturning.





**BATTER FRAME** mounted on deck of derrick boat holds long brace piles being driven for heavy crane foundation within pier. Crane will handle loaded railroad cars between pier and ships.

214 ft. As the H-sections are delivered in maximum lengths of 65 and 80 ft., at least one splice must be made in each pile. A 130-ft. section is the longest that the barge-mounted whirley can handle, and piles longer than this must be field-spliced after one length has been partially driven. Sections up to 130 ft. long are welded in the contractor's yard before delivery to the pier site, while longer piles have a piece added to them on the job. Since the great majority of piles exceed 130 ft., considerable field-

welding is necessary after the piles have been set up in the leads.

After the driving rig has been accurately spotted, piles are set in the two end leads and are allowed to sink into the river bottom to spud the scow in exact position while all remaining piles in the bent are driven. Piles under 130 ft. long are driven to rock or refusal (10 blows to the inch), in the standard manner, but the procedure for longer piles is as follows:

(1) The whirley sets and partially drives three or four pile sections until their tops are about 5 ft. above the scow's deck level. A few light taps with an 11B3 used as a drop hammer are usually sufficient to sink these piles in the soft bottom of the 30-ft.-deep dredged basin where the pier is being built.

(2) Lengthening sections are placed in the leads on top of each of the previously started piles. Three pins, welded to the web at the bottom of this second piece, position and hold the foot of the section, and the top is snubbed with a cable.

(3) While the crane sets additional piles and lengthening pieces, welders splice the previously placed piles with a full-section weld.

(4) When the whirley has set up all piles in the bent, it returns to the first pile, now spliced, and drives it to rock or refusal with an 11B3 hammer.

(5) Splicing and driving continue until all 13 plumb piles in the bent are down.

To position and drive batter

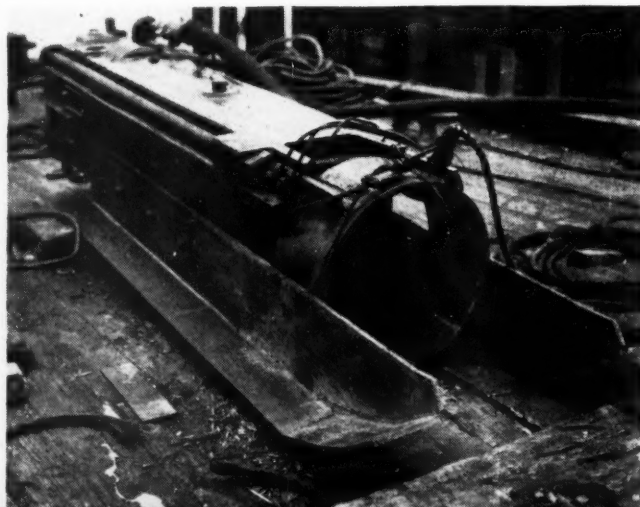
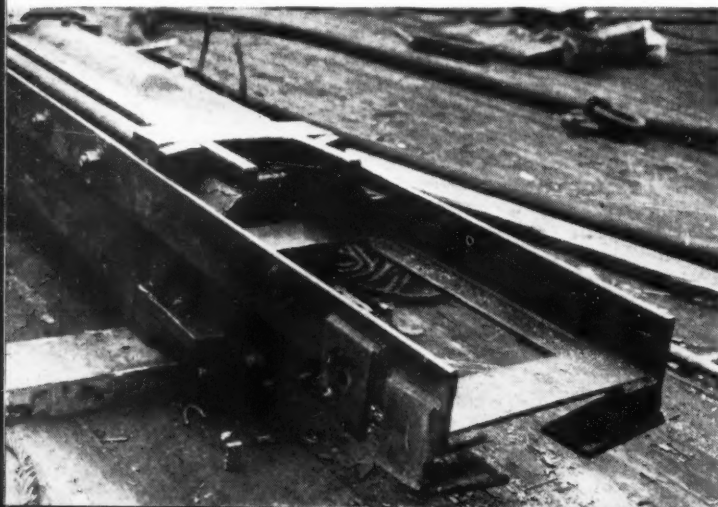
piles, which also require field-splicing, the contractor devised a sloping frame of 6x8-in. posts and 3x10-in. bracing that gives the piles their correct 1 on 3 batter. Spanning between two bents and resting on four piles in each, the frame rises 47 ft. over pile cutoff and has two planked inclines which hold the pile sections during splicing, and down which the pile and hammer slide during driving.

### Batter Procedure

After the first batter pile section, with its tip in river bottom, is rested against the incline, it is driven with a 9B3 hammer equipped with angle guides to hold it on the pile. The hammer is slung from a 115-ft. boom on a derrick boat that also handles pile sections and positions the batter frame. When the top of the first pile section is close to water level, a lengthening piece is fitted to it and is rested on the frame while the splice is made. After welding, the pile is driven to refusal with a 10B3 hammer since the heavier ram is needed to drive the full pile length. This hammer is fitted on the underside with curved guide shoes that enable it to ride over the top of the batter frame as the pile goes down.

The work is being done by J. Rich Steers, Inc., New York as part of their contract, estimated at \$600,000, for construction of pier substructure and deck for Seatrail Lines, Inc., New York. H. W. Lehmkuhl is job superintendent, and A. C. Elliott is general foreman for the Steers firm, while H. E. Boeckel is resident engineer for the consultants, Harder, Barbato & Ciampa, of New York.

**BATTER PILE HAMMERS** are 9B3 (left) with angle frame that slips over upper flange to hold hammer on pile, and 10B3 (right) with shoes that guide hammer over top of batter frame. Light hammer drives section before splicing, while heavier 10B3 drives full spliced pile length.





*Cited  
for  
Service*

BOISE, IDAHO, might be called the contracting capital of the world, for there is where Harry W. Morrison lives and operates. From a modest office building on the outskirts of that small city he directs the far-flung destinies of his firm, Morrison-Knudsen Company, Inc. That is, he directs from Boise except when he is chasing around from job to job, usually accompanied by his genial wife and adviser, Ann, or is checking up on branch offices in San Francisco, Los Angeles, Seattle or New York, or is making a flying visit to some foreign project, or is cooking up a combination of firms to bid a job.

Organizing contractor combinations is Harry Morrison's forte. It was he who conceived the idea of a combination of firms banding together to build Boulder Dam, resulting in the formation of the now famous Six Companies Inc. That move started a dynasty of Western contractor affiliations that still reigns. Morrison's original idea has spread to encompass practically every big job tackled today by American contractors throughout the world. Firms group and regroup, combine and disband, split up and split off, now as partners, again as competitors in bewildering fashion. The pattern set for Boulder Dam made possible the incredible war-time construction achievements.

Born on an Illinois farm Feb. 23, 1885, Morrison entered the con-



**HARRY W. MORRISON**

struction world as a water boy for Bates & Rogers Construction Corp. in 1902. From 1906 to 1912 he worked for the U.S. Bureau of Reclamation, and that experience fired him with ambition to achieve a technical education, accomplished through a correspondence course in civil engineering. In 1912 he ventured into contracting as a partner of Morris Knudsen. Since 1939 he has been president.

Today the company is engaged in heavy construction, coal stripping, logging operations and railroad maintenance. It is a joint venturer on eleven big jobs in this country and in the Pacific islands, is interested in eleven more associated corporations, mostly on foreign work, and is participating in five manufacturing ventures. Operations extend from Alaska to Brazil, from San Francisco to

Afghanistan, from New York to China.

Morrison selects good, capable men to manage his operations, and their loyalty to The Boss, as they reverently call him, is traditional. Yet he takes a personal interest in every job. His concern for the welfare of all employees from laborer to project manager is inspirational in a reputedly hard-hearted industry. Home-office work irks him, so he slips away whenever possible to get right out on the job, for construction operations are a passion with him, attention to details and to safety is an obsession.

Harry Morrison, giant among construction men, well deserves the tribute paid him by a high-ranking Navy officer: "He is one of the greatest builders the world has ever seen." So say all who know him.

# BIG ARMY CAMP CONVERTED TO STUDENT HOUSING



**COMPLETED BUILDINGS** house three or four families. Other structures on 1,500-acre project are converted to schools, libraries and stores. Grounds will be landscaped and walks paved.



← **TYPICAL ORIGINAL BARRACKS** at Camp Shanks is 20 x 100-ft. frame structure with asphalt-surfaced fiber board siding and bare interior. Building will be converted into three or four apartments each having bedroom, living room, bath, kitchen and storage space. Shanks Village will house 2,400 veterans and their families.

Page 92

**INTERIOR IS PANELED** (below) with plasterboard after aluminum-foil insulation is placed. Partitions are erected last to give more free working space in apartments.

**SALVAGED TIMBER** (below) from demolished buildings is ripped by table saw to furnish framing and partition studs. There is no shortage of lumber on huge project but most of it must be cut to size.

**CAMP SHANKS**, a huge Army cantonment that once housed 35,000 students of war, is rapidly being converted into temporary housing for 2,400 families of veterans resuming peacetime studies at colleges in New York's metropolitan area. More than 1,500 acres of the 12-sq. mi. military establishment at Orangeburg, N. Y., 25 mi. from Manhattan, have been turned over to the Federal Public Housing Authority for their project, which will be known as Shanks Village. General Fabricating Construction Co. of New York City is now on the site disassembling unwanted buildings and altering the remaining barracks structures into attractive homes.

## Barracks Altered

Barracks at Camp Shanks were 20x100-ft. one-story structures set on concrete block piers. Construction was wood frame with 2x4 studs on 2-ft. centers, and with trussed rafters 4 ft. c. to c. supporting a wood-sheathed, asphalt-shingled roof. Weatherproof asphalt-surfaced Celotex nailed directly to the studs formed the exterior siding, while the interior was left bare. No utilities other than electricity were furnished to the buildings, which were heated with individual coal stoves.

In contrast to the barren simplicity of the Army barracks are the veterans' homes into which they are being converted. More than 500 buildings are being dis-

**WORKING FORCE** of 2,000 men is split into specialty crews to speed conversion of barracks. Group below squares up beams before ceiling panel board is nailed.





mantled to provide more space surrounding the 712 barracks that will be retained. Each building is being altered to accommodate three or four families in apartments with from one to three bedrooms plus bath, kitchen, living room, and storage space. Partitions, interior wall surfaces, and ceilings are paneled with  $\frac{3}{8}$ -in. plasterboard while party walls have, in addition, a thickness of acoustical insulating board behind each face. Aluminum-foil insulation in floors, walls, and ceilings and a 40,000-B.t.u. oil-fired space heater in each apartment should keep the occupants comfortable during the winter months. Exterior treatment includes painting, the addition of porches, and the inclosing with Transite of the space beneath the buildings.

#### Utilities Expanded

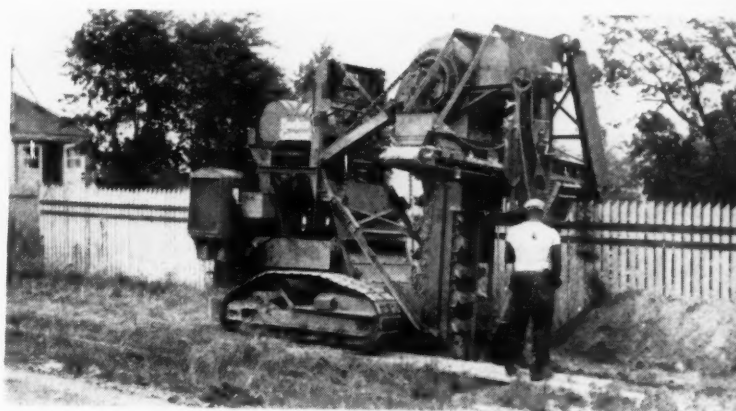
The existing water supply and sewage disposal facilities at the camp were more than adequate to handle the peacetime demand, although it was necessary to install extensive branch lines to connect apartment fixtures with sewer and water lines formerly terminating in washroom buildings scattered throughout the camp. A natural gas distributing system was installed to supply the buildings with cooking gas from a local public utility. Many of the camp's structures other than barracks are being retained. Some washroom buildings are being altered to serve as laundries, while other structures are being converted into stores, libraries, schools, chapels, and recreation buildings to make the project a self-contained community. When completed, Shanks Village will provide attractive housing and pleasant living for many veterans and their families.

General Fabricating Construction Co., New York, with Alfred Cerreta as project manager and James Deans as superintendent, is general contractor for the camp conversion under a fixed-fee contract with the Federal Public Housing Authority. Subcontractors include: installation of utilities, Frank Merino Corp., Brooklyn; electrical installations, J. E. Smith, Cornwall-on-Hudson, N. Y.; plumbing, Schwartz Contracting Co., Brooklyn; painting, Bullock & Co. Brooklyn; Michael M. Burris, Englewood, N. J., is consulting engineer and architect, while Edwin Manahan is project engineer for FPHA.



**EXTERIOR IS CALKED** after door and window sash are moved to provide front and rear entrances to individual apartments in place of original double doors at barracks ends. Coat of sealer brushed over all exterior wall surfaces before painting prevents asphalt siding from burning through.

**DITCHING MACHINES** dig trench for 373,000 ft. of gas, water and sewerage lines. Converted barracks are connected to mains and trunks formerly running only to washroom buildings. Entire gas system is newly installed.



**MESS HALL (below)** is converted to carpenter shop to prefabricate porches for veterans' homes and to alter thousands of doors needed for project. Plywood panels are substituted for lights in interior doors.



# Big Rigs

Winning Million Yards Monthly  
Into San Francisco Airport



ELECTRIC 6-YD. SHOVELS, working against high sand face, load fill into big hauling units for 3-mi. haul to San Francisco airport. At left is Euclid 13-yd. trailer, at right, is new 32-yd. Southwest hydraulic wagon.





**CLAMSHELL ON WHEELS** is this new 16-yd. Dixon semi-trailer wagon. Segmental buckets are opened by single cable from power control unit on truck. Twenty of these rigs are included in fleet hauling 6,000,000 yd. of fill on 250-day contract.

**PLACING SIX MILLION YARDS** of fill in the San Francisco Municipal Airport extension with a 6-mi. round-trip haul on a 250-day contract schedule calls for big earthmoving equipment and lots of it. The same combination of contractors, Macco Corporation and Morrison-Knudsen Co., Inc., who as co-venturers made an extension to the airport during the war, have the present contract at 62.3c. per yd. With a fleet of 75 hauling units, some of them 33-yd. wagons, loaded by six shovels, they have stepped up the output to a million yards a month, with daily production running as high as 46,000 cu. yd. in three shifts. Besides the long haul, another difficulty is the soft mud bottom in San Francisco Bay that requires special care in placing the fill.

Big equipment is not the only factor in the high-speed production for a private, asphalt-surfaced haul road also plays an important part. This road, leading from the borrowpit 3 mi. to the west, was originally built to serve the previous job. Three temporary overpasses carry it over two arterial highways and a four-track railroad. For the present work the haul road was improved to accommodate the big rigs traveling at high speed.

Two new hauling rigs made their debut on this job. One is a 33-yd. bottom-dump semi-trailer wagon, built by Southwest Welding & Mfg. Co., and powered by a 200-hp. Peterbilt pneumatic-tired tractor. Bottom doors are hydraulically controlled and operated. There are 21 of these new units on the project.

The other brand new rig is a 16-yd. Dixon dump wagon whose body is arranged in two hoppers resembling a huge clamshell bucket. The two sectors are raised for discharging the load by a single cable working through a power control unit on the truck. The hauling fleet includes 20 of these units.

Rounding out the fleet are 36 Euclid 13-yd. bottom-dump trailer units. All three types operate at



**RESPONSIBLE** for keeping equipment rolling on job are LEX HOBSON (left), master mechanic, and TRACE BAKER, truck foreman. Their fleet includes 75 huge dirt-moving rigs.

**SIX YARDS** every pass are loaded on to Dixon wagon (below) by Bucyrus-Erie electric shovel at bottom of borrowpit. Disintegrated sandstone makes ideal fill material.





**HIGH UP** on face of borrowpit bulldozer swamps out berm to protect shovels below from slides. On the skyline is well-drill rig preparing blast holes for loosening face.



**AIRPORT FILL** builds up fast when these big rigs roll in at frequent intervals. In foreground is Southwest 33-yd. wagon, followed by Dixson 16-yd. unit. Note hydraulic gates on Southwest rig.

Page 96

**TIME OUT FOR FUEL** is taken by several hauling units (below) at refueling station established on haul road. In background is one of three overpasses on haul road, built to keep hauling units clear of traffic on arterial highway.



about the same speed, making an average of 20 round trips (120 mi.) per shift. A refueling station has been set up along the haul road.

The borrowpit, in which some 14,000,000 cu. yd. of fine sand (disintegrated sandstone) are available, is worked from the bottom floor level, though in some places the working face rises to 250 ft. While the material is compacted sufficiently to stand on a fairly steep slope, there would always be danger of bad slides in working such a high face from the bottom. Therefore, to minimize these dangers, the face is loosened by blasting from well holes drilled from the top. The top shots enable bulldozers to blade out a safety bench 80 ft. below the top rim. Then this bench is drilled and the material below is loosened up for another 80-ft. depth. A second bench bulldozed out 160 ft. below the top leaves only a 100-ft. face above the shovels, not considered a dangerous height.

Loading the hauling units on the borrowpit floor are three Bucyrus-Erie 120B electric 6-yd. shovels and three Northwest 80D 2½-yd. shovels. Electric power for the shovels is furnished at 2,300 v. through a central transformer bank.

At the airport, placing of fill must be carefully controlled to prevent excessive mud waves in the soft bottom. The forward edge of the fill is advanced at a rate that will push the real soft stuff ahead and yet properly consolidate the foundation remaining in place.

O. H. Tucker is project manager for the contractors, and George Haensel is superintendent. The airport was designed by the Power & Utilities Engineering Bureau of San Francisco, for which A. O. Olson is chief engineer. Adolph J. Wehner is construction engineer on the job for the city.

THE  
treas  
Siou  
dent  
direc

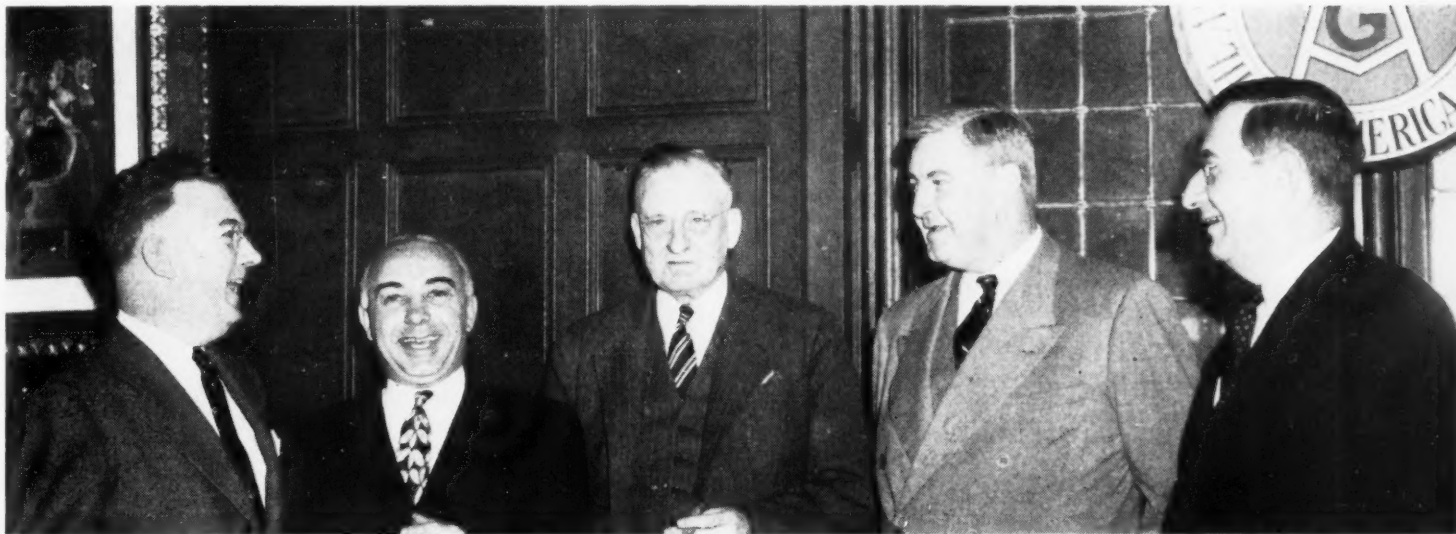
W. W.  
the co  
he is  
DeW

BUILD  
BELLO  
sion b  
W. V  
gineer  
merely  
DWIG  
builder  
man fr



# Contractors and Highway Officials Get Together

MEETING in Philadelphia in October for their regular fall session, the Associated General Contractors of America demanded lifting of all controls and restrictions on construction, discussed the labor and materials situation, tried to figure out the market for work next year, selected new officers for 1947 and held a joint cooperative meeting with representatives from the American Association of State Highway Officials. These pictures show some of the big shots attending the meeting.



THESE MEN will carry on for A.G.C. in 1947. BILL MUIRHEAD (left), Durham, N. C., thinks it is a joke he is renamed national treasurer; DWIGHT WINKELMAN, Syracuse, N. Y., seems pleased about being nominated for vice-president; FORREST PARROTT, Sioux City, Ia., is already worrying about the job of president he was named for; WARREN BELLOWES, Houston, Tex., present president, wonders what that North Carolina Scotchman on the end is cooking up now; while DOC FOREMAN, A.G.C. managing director, who has seen many presidents come and go, seems pleased at the selection of officers.



W. W. MACK (center) State Highway Engineer of Delaware, led the cooperative meeting between the A.G.C. and A.A.S.H.O. Here he is bolstered up by DOC FOREMAN on the left and MORRIS DeWITT, Poplar Bluff, Mo., head of the A.G.C. highway division.



HARRY KIRK (left) secretary of the contractor-highway officials joint conference, calls attention to J. S. BRIGHT, U. S. Public Roads Adm., who took an important part in the discussions. DICK HOPKINS, veteran professor, contractor and gravel man from Albany, N. Y., never misses one of these affairs.

→  
BUILDING CONTRACTOR WARREN BELLOWES, (left) got into the highway session by virtue of being A.G.C. president. W. VANCE BAISE, State Highway Engineer of North Carolina, isn't asleep, he merely anticipated the camera flash. DWIGHT WINKELMAN, hustling road-builder from Syracuse, admires the big man from Texas.



# Accounting for

FOURTH OF A SERIES OF SIX ARTICLES BY GUY M. CARSON,

PAY ROLL																			
PAY ROLL FROM <i>March 28</i> 1945 TO <i>April</i> 1945																			
		KIND OF LABOR	JOB NUMBERS			EARNINGS AT REGULAR RATE			OVERTIME PREMIUM			TOTAL COMPEN- SATION	DEDUCTIONS					NET PAID	
						HRS.	RATE	AMOUNT	HRS.	RATE	AMOUNT		O.A.B.	WITHHOLDING EXEMP.	TAX	ADV.	INS.	CHECK NO.	AMOUNT
1	<i>A. Marks</i>	<i>Carp</i>	<i>10</i>			<i>40</i>	<i>2.00</i>	<i>80.00</i>				<i>80.00</i>	<i>80</i>	<i>1</i>	<i>15.10</i>			<i>64.90</i>	
2	<i>H. Massey</i>	<i>"</i>	<i>11</i>			<i>40</i>	<i>2.00</i>	<i>80.00</i>				<i>80.00</i>	<i>80</i>	<i>3</i>	<i>10.80</i>			<i>69.20</i>	
3	<i>E. Husley</i>	<i>Mason</i>	<i>9 10</i>			<i>30</i>	<i>1.00</i>	<i>30.00</i>		<i>1.00</i>		<i>31.00</i>	<i>83</i>	<i>2</i>	<i>13.40</i>			<i>67.60</i>	
4	<i>Tom Moore Jr.</i>	<i>Driver</i>	<i>G</i>			<i>40</i>	<i>1.00</i>	<i>40.00</i>				<i>40.00</i>	<i>40</i>	<i>4</i>	<i>80</i>			<i>39.20</i>	
5	<i>Alice Moran</i>	<i>Office</i>	<i>G</i>			<i>40</i>	<i>.75</i>	<i>30.00</i>				<i>30.00</i>	<i>30</i>	<i>2</i>	<i>1.40</i>			<i>28.60</i>	
								<i>312.00</i>		<i>1.00</i>		<i>313.00</i>	<i>313</i>	<i>3</i>	<i>41.50</i>		<i>207</i>	<i>268.37</i>	

Fig. 1 . . . PAYROLL form that records all essential information covering definite payroll period. Note column for job numbers which permits wages to be keyed with various projects to be recorded on Job Records (to be discussed next month). In this example office and general employees are keyed with a G, indicating general overhead and showing job assignment has not been overlooked. This example is also that of cash payroll, provided by check No. 207.

## Payroll Records

PAYROLLS once were simply the record of earnings paid to employees. In these days of increasing social benefits, the payroll is far more than an earnings record. It is a complex statement of earnings and diverse deductions and corresponding disbursements. Because payrolls are a major part of contracting expense, and because of the necessity for accurate record of distribution of withheld amounts, in the face of stiff penalties for errors, the payroll record becomes the contractor's most important accounting item. It must supply the information for the following items in addition to the hours worked, amount earned, and personal record of the payee:

Withholding Tax.....	12
O.A.B. Tax.....	4
Unemployment Comp.	
Tax—State .....	4
Unemployment Comp.	
Tax—Federal .....	1
Income Tax.....	1
W-2 .....	1
Workmen's Comp. Ins....	1
Vacation Credits.....	1
Misc. (ave.).....	4
Total .....	29

Thus, on the average you'll find need to refer to the Payroll Record for detailed information at least 29 times per year. You'll need, on many of those occasions, to know what each man has earned and various other information such as the amount of tax withheld, the amount of O.A.B. Tax deducted, etc.

It seems a momentous task to keep a record which will give the

Ave. no. times  
per year  
referred to

information necessary to make up all those reports. It is! Some of the reports must show what an employee earned per month; or per quarter; or per year; or how much tax of one kind or another has been collected from him; amount of overtime and so on and on until you wonder who is working for whom. Incidentally, your check must accompany some of the reports and they must arrive at a certain place by a certain time. Otherwise, in addition to the taxes to pay, there's Hell to pay.

Yet, formidable as all this may sound, payroll records may be kept in such a manner as to cut the work to a minimum. To accomplish this, records shown in the accompanying illustrated forms are recommended. Fig. 1 is your Payroll Record. It constitutes your detailed record and your payroll summary. When you are reporting totals, overall payroll, O.A.B., Withholding or Unemployment tax,



# or Contractors... 4

ON, **COMPTROLLER, TALLMAN, ROBBINS & CO., CHICAGO, ILL.**

this record supplies the needed information.

When you must have information on the individual earner, it is obtained from the Employee's Earnings Record as shown in Fig. 2. This record may be kept by posting each worker's earnings to his card periodically and balancing the Employees Earnings Records with total payroll to make sure the postings are correct.

Or, by a very ingenious method, the Employee's Earnings Record may be made out at the same time as the check (or cash slip if you pay by cash). This is accomplished by having a spot carbon on the back of your payroll check or cash slip, as shown in Fig. 3.

## Simple, Complete Records

Each employee has, where this method is used, an Employee's Earning Record Sheet with 52 numbered lines (one for each week in the year, 26 on each side) divided in 13 weekly periods. The record is thus divided into quarters for ease in making the necessary quarterly reports. The top of this sheet carries headings for the regular and overtime hours and for all standard deductions as well as several blank columns for your own use, and for check number and net amount paid.

While the illustration in Fig. 3 shows a pay check being used, the system works equally as well for a cash payroll merely by substituting cash receipts for the pay check.

The paycheck or cash receipt has a narrow strip of carbon on the back of the perforated stub which is used for filling in the pay data. The stub is retained by the employee for his personal record. No carbon paper is required. In the top stub of the pay check or cash receipt there is a 1/4-in. hole, which is placed over the Individual Earnings Record so that the num-

EMPLOYEE'S EARNINGS RECORD											
NAME <b>Patrick Flanigan</b>						SOCIAL SECURITY NO. <b>541-08-8121</b>					
ADDRESS <b>7123 N. Albany St.</b>						CLOCK NO. <b>37</b>					
WITHHOLDING TAX CLASSIFICATION <b>2</b>						TELEPHONE NO. <b>Rec. 6570</b>					
WEEK ENDING	REGULAR EARNINGS HOURS AMOUNT	EXCESS EARNINGS HOURS AMOUNT	TOTAL COMPENSATION	O.A.B.	WITHHOLDING TAX	BONDS	DEDUCTIONS	FA. CR.	CHECK NUMBER	NET AMOUNT PAID	
1 7-6-46	34.3 61.41	5.3 4.71	66.12	.66	7.80	5.00		2.30	4839	62.66	
2 7-13-46	45.0 80.69	8.9 7.84	88.53	.89	12.00	5.00		2.75	4942	70.64	
3 7-20-46	41.6 74.41	5.3 4.71	79.12	.79	10.10	5.00		2.75	21	63.23	
4 7-27-46	45.0 80.69	8.9 7.84	88.53	.89	12.00	5.00		2.75	107	70.64	
5 8-3-46	45.0 80.69	8.9 7.84	88.53	.89	12.00	5.00		2.75	307	70.64	
TOTAL FOR PERIOD											
1st QUARTER											
2nd QUARTER											
3rd QUARTER											
4th QUARTER											
YEARLY TOTALS											
PREVIOUS EMPLOYMENT DATE <b>Feb. 6, 1946</b> TERMINATED <b>Apr. 3, 1946</b> WHY <b>Job Completed</b>											
DATE EMPLOYED <b>July 1, 1946</b> OCCUPATION <b>Carp.</b>											
MARRIED <input checked="" type="checkbox"/> SINGLE <input type="checkbox"/> WIDOW (ER) <input type="checkbox"/> DEPENDENTS <b>2</b> EMPLOYEE'S SEX <b>M</b> WHITE <input checked="" type="checkbox"/> COLORED <input type="checkbox"/>											
NATIONALITY <b>Am.</b> DATE OF BIRTH <b>Sept. 14, 1906</b>											
EMPLOYMENT TERMINATION <b></b> WHY <b></b>											

Fig. 2 . . . TOTAL EARNINGS, along with detailed record of all deductions, for each individual employee are kept on this form. This is a permanent record, which may be shown employee if any questions arise as to payment and deductions. It also gives employer record of how deductions were made and how they shall be paid out in taxes and benefits.

ber of the week shows through the hole. This gives proper alignment so that the pay data is copied on the Employees Earnings Record in the proper place each week.

It is simple, saves time, and makes instantly available information which will be required time and time again for the various reports referred to above. Some

**EMPLOYEE'S EARNINGS RECORD**

NAME **Patrick Flanigan** SOCIAL SECURITY NO. **541-08-8121**  
 ADDRESS **7122 E. Albany St.** CLOCK NO. **37**  
 WITHHOLDING TAX CLASSIFICATION **2** TELEPHONE NO. **Roc. 6570**

WEEK ENDING	REGULAR EARNINGS		EXCESS EARNINGS		TOTAL COMPENSATION	O.A.B.	WITHHOLDING TAX	BONDS	DEDUCTIONS	CHECK NUMBER	NET AMOUNT PAID	
	HOURS	AMOUNT	HOURS	AMOUNT								
1												
2												
3												
4												
5												
6	8-10-46	44.2	79.19	8.9	7.86	87.05	.87	11.80	5.00	2.20	420	69.56
7												
8												
9												

**EMPLOYEE'S EARNINGS RECORD**

DATE PAID **8-14-46** EMPLOYEE'S NAME AND SOCIAL SECURITY NUMBER **Patrick Flanigan 541-08-8121**

WEEK ENDING	REGULAR EARNINGS	EXCESS EARNINGS	TOTAL WAGES	O.A.B.	WITHHOLDING TAX	BONDS	DEDUCTIONS	CHECK NUMBER	NET AMOUNT PAID		
8-10-46	44.2	79.19	8.9	7.86	87.05	.87	11.80	5.00	2.20	420	69.56

TO EMPLOYEE: RETAIN THIS RECORD. IT IS A STATEMENT OF YOUR EARNINGS AND TAX DEDUCTIONS AS REPORTED TO THE FEDERAL AND STATE GOVERNMENTS.

TALLMAN, ROBBINS & COMPANY  
CHICAGO, ILL. 10, III.

**Tallman Robbins & Company**  
 314 WEST SUPERIOR STREET  
 CHICAGO, ILL. 10, III.  
 August 14, 1946

PAY **\$69.56** DOLLARS \$ **69.56**

**Tallman Robbins & Company**  
 PAYROLL ACCOUNT

Patrick Flanigan

Fig. 3 . . . PAYROLL RECORD KEEPING is simplified by use of pay checks containing supplementary statement of earnings and deductions covered by accompanying check. If detail record form is backed up with spot carbon, information typed on check can be recorded at same time on Employee's Earnings Record as shown in this example. For proper recording, hole at upper left corner of check form is lined up with proper line on earnings record form.

contractors report a saving of one-third in time and expense in making out their payrolls by this method.

The contractor who is in business to make money must watch his expenses, particularly his payroll. He must keep track of the labor cost on each job, otherwise he may find he is not making any profit, and as he very well knows, he may be losing money on certain jobs.

The Payroll Record shown in Fig. 1 is designed to show the job number on which the worker has spent his time. In addition to providing information concerning Withholding, O.A.B., Social Security tax, State Unemployment Compensation tax and Federal Unemployment Compensation tax, it is also laid out so that wages may be identified with the jobs on which the worker earned them. By referring to Fig. 1 you will notice that provision is made for wages to be keyed with the various job numbers. This permits the

charging of direct wages to the various job records (to be discussed in the next article in this series).

It is suggested that if the contractor employs more than one kind of labor, each different craft be grouped together. If the contractor employs only plumbers or any other single trade, this need not be done. His problems are simple.

But, if, for example, the contractor employs carpenters, plumbers and electricians, each craft should be grouped and one or more blank lines left between each group on the Payroll. This permits the adding of the total carpenters' wages, for example, which can be posted in one figure to the job.

The same with the other craftsmen. If a large number of jobs are worked on each week, it may then be necessary to make a little summary to determine the amount of wages which shall be posted to each job. Indirect Labor, such as

office workers, general shop employees, etc., will, of course, not be charged to a specific job.

The wages to be charged to jobs is the amount shown in the Total Compensation column. If it is desired to show the overtime on any or all jobs as a separate item, that information is available in the "Overtime" column.

In the illustration shown (Fig. 1) this contractor evidently pays his employees in cash. He has drawn one check, No. 207, for the entire amount of the payroll. That check would, of course, be entered in his Cash Paid Out record. If you pay each worker by check, the check number should appear in the Check No. column of your payroll record, before the amount paid each worker. In that case, your Cash Paid Out record should show those check numbers and amounts. They may be grouped thus: Checks No. 1 to 5 incl., \$268.37 and made in one entry in your Cash Paid Out. This cuts down time and space. Of course you may enter each check and each amount in your Cash Paid Out Record if you prefer.

Payroll taxes may be accrued weekly or they may be entered in Cash Paid Out when they are paid. Many contractors find it very satisfactory to record payroll taxes only when paid. That is simple and sufficient in ordinary cases.

We have not dealt with time-keeping. There are many different methods, any of which is satisfactory if it is accurate as to hours worked, and time is properly allocated to jobs and to job classifications, if the latter is desired. Some building supply houses furnish Time Books, which are usually adequate for the purpose.

During the last decade you have seen many new devices and improvements in construction, all designed to save time and money, or to improve job procedure. Improvements have also been made in office procedures. If you haven't adopted them, you are behind the times. You should do so immediately. The method of handling payroll illustrated herewith will save you time and money. Remember, "A dollar saved is a dollar earned."

**EDITOR'S NOTE:** The cost accounting system and forms described in this series may be obtained from Tallman, Robbins & Co., 314 W. Superior St., Chicago 10, Ill. The author, comptroller of the company, welcomes questions and comments on the subject.



# LEGAL ADVENTURES

of TRACTOR CONN



By LESLIE JOBB

No contractor ever tries to be his own dentist or his own shoemaker. It is even more dangerous for him to be his own lawyer. There are, however, some legal rules which every contractor should know, and these rules may be explained in plain English without resorting to the jargon of the law, unintelligible to most laymen.

This series of articles, dealing with the Legal Adventures of Tractor Conn, a typical contractor anywhere in the United States, explains some of these legal points in plain language for the contractor. Each one is based on an actual decision of an American Court.

## The Case of the Disregarded Instructions



Tractor Conn had sold his Kansas branch business. He drew a transfer of the property to the buyer, and a chattel mortgage from the buyer to himself to obtain the unpaid balance and forwarded both documents to a Kansas National bank doing business in the buyer's home town.

"When the chattel mortgage has been duly executed you will deliver to the buyer the inclosed transfer and return the chattel mortgage to me for recording," Tractor Conn wrote.

The bank delivered the transfer, but failed to obtain the chattel mortgage. The buyer gave a chattel mortgage to a third party, Tractor Conn lost the unpaid balance, and sued the bank for damages in the Kansas Courts.

"A National bank has no authority to act as agent for other parties under these circumstances, and consequently the bank is not liable for damages," the bank contended.

"If that's the case, you should have returned both the papers to me. Since you undertook to do the

business and did not carry out my instructions, you are legally liable," Tractor Conn retorted, and the Kansas Supreme Court so ruled. "Nevertheless, where a bank has lawfully received money or property, it must account for the same or its proceeds, notwithstanding an ultra vires agreement in this respect," the Court said.

## The Case of the Wilful Default

If Tractor Conn contracts with John Doe to do a certain thing, according to the strict rules of the common law he must carry out his contract in every respect according to the very letter thereof, and if there is any breach of contract on Conn's part then Doe can recover damages. On the other hand, the courts have applied the same general rule in the case of building contracts generally, so that if Tractor Conn does not fulfill his contract in every respect, and does the work in a different manner from that specified in the contract, or uses different but suitable materials, then he is liable for damages. These damages, however, are the difference between the value of the building which he actually constructed, and what this value would have been if it had been constructed according to the contract.



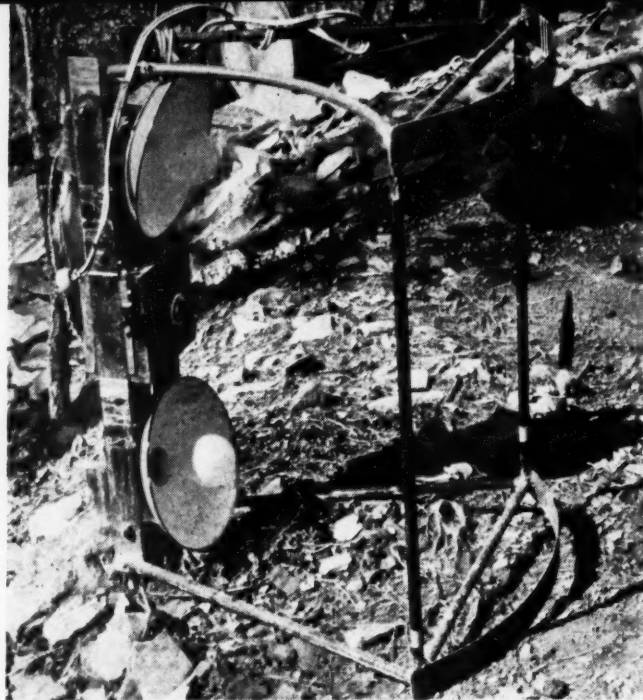
This rule, however, is applied only where Tractor Conn substantially performs his agreement and acts in good faith. When he does not act in good faith, but wilfully, intentionally and maliciously uses materials not specified in the contract, what is the measure of damages?

On this point the Kentucky Court of Appeals, in a case reported in 210 Southwestern reporter 494, has ruled that the true measure of damages is the actual cost of reconstructing the building according to the contract. It is only where the owner has paid for the building in full that he is compelled to sue for damages, but suppose that Tractor Conn has wilfully and intentionally departed from the terms of his contract and then attempts to collect the contract price. Is John Doe bound to pay what the work is reasonably worth or can he refuse payment altogether?

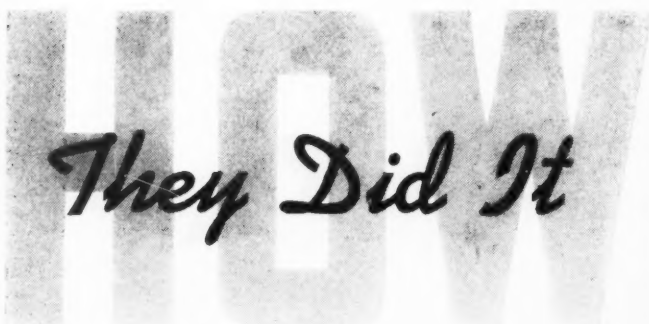
On this point the California, Massachusetts, Minnesota, New York and Pennsylvania Courts have ruled that Tractor Conn has no right of action.

In Kentucky, Louisiana and Missouri, however, the courts have ruled that Tractor Conn may recover his contract price less the cost of reconstructing the building according to the terms of the contract.

**More Legal Adventures of  
Tractor Conn Next Month**



TO PHOTOGRAPH WALLS of 36-in. calyx drill test holes in investigating Narrows damsite on Little Missouri River, U.S. Engineers at Vicksburg, Miss., devised special camera frame that rode cage in hole. As shown by above illustrations, camera is mounted on welded pipe frame midway between two strong lights in reflectors. Camera assembly is lowered into hole inside another pipe frame cage which can be held at desired elevation and turned to photograph any section of drill-hole wall. Camera shutter is operated by magnetic trip.

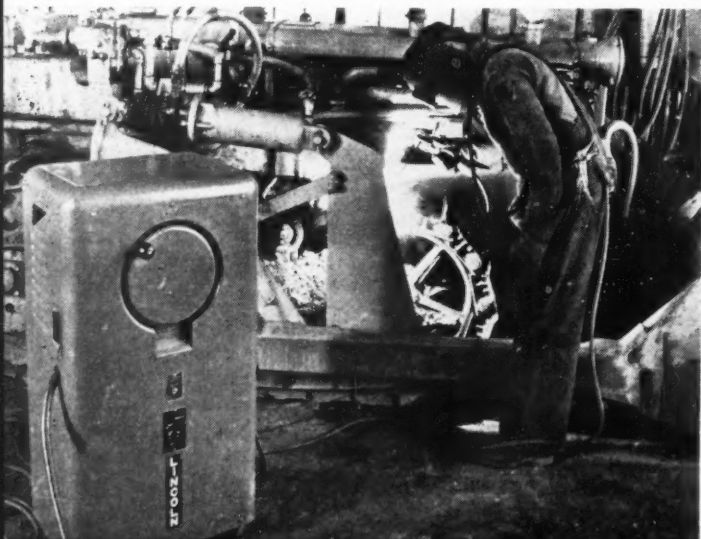


## CONSTRUCTION DETAILS

### For Superintendents and Foremen

Page 102

TRACTOR GROUSER BARS (below) are cleaned with wire brush and then hard-surfaced by application of 5/32-in. a.c. Abrasoweld welding rod on Lincoln Fleet Arc Jr. machine in maintenance shop of Ulland Construction Co., of Duluth, Minn. No fractures were present in this repair job, which was completed in 18 hr. No grinding or other refinishing was necessary.



BIG TIRE SERVICE TRUCK, converted from war surplus command car, takes care of heavy earthmover tires on San Francisco airport job for Macco Corp.-Morrison-Knudsen Co. Rig carries front-end crane, air compressor and floodlights for night use.

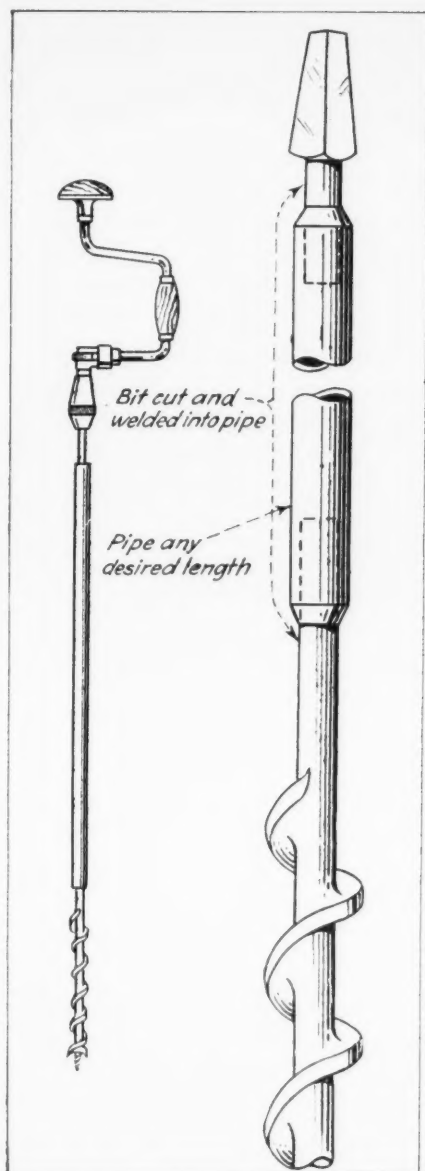
TWISTED STEEL STRAPS (below) are mounted beneath patrol grader to mix-in-place sand asphalt airport surfacing at Tsingtao, China. Devised by Seabees of 96th Construction Battalion, welded mixing frame is suspended from grader's blade-circle legs and scarifier tooth block.



HOT  
by  
suit  
to e  
ing.  
stra  
Phil

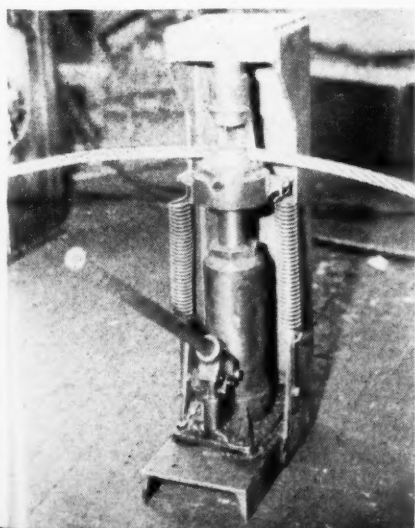
HYD  
up  
cutte  
simp  
Co. p  
retra  
leas  
devic  
requ





**HOMEMADE BIT EXTENSION** is obtained by cutting ordinary bit in two and welding suitable length of small-size pipe to shank to extend it any desired length. In welding, care should be taken to keep axis straight.—Drawing from Andrew Vena, Philadelphia, Pa.

**HYDRAULIC CABLE CUTTER** (below) made up of hydraulic jack and conventional cutter assembled in welded channel frame simplifies cable cutting in Bay City Shovel Co. plant, Bay City, Mich. Two coil springs retract jack when hydraulic pressure is released. Shop superintendent reports this device does neater and quicker job than regular cutter requiring hammer blow.



**PIPELINE FOR DREDGING** 34-ft. ship channel to mouth of Savannah River at Savannah, Ga., is opened to permit passage of ship. At ship's approach, ball joint is uncoupled and pipeline, supported on welded pontoons, is hinged back. After passage, launch carries  $\frac{3}{4}$ -in. wire rope from steam derrick barge across to pipeline. Derrick pulls hinged section of floating line back into position with aid of launch. It takes 5 min. to open and 7 min. to close pipeline.

Authenticated News Photo

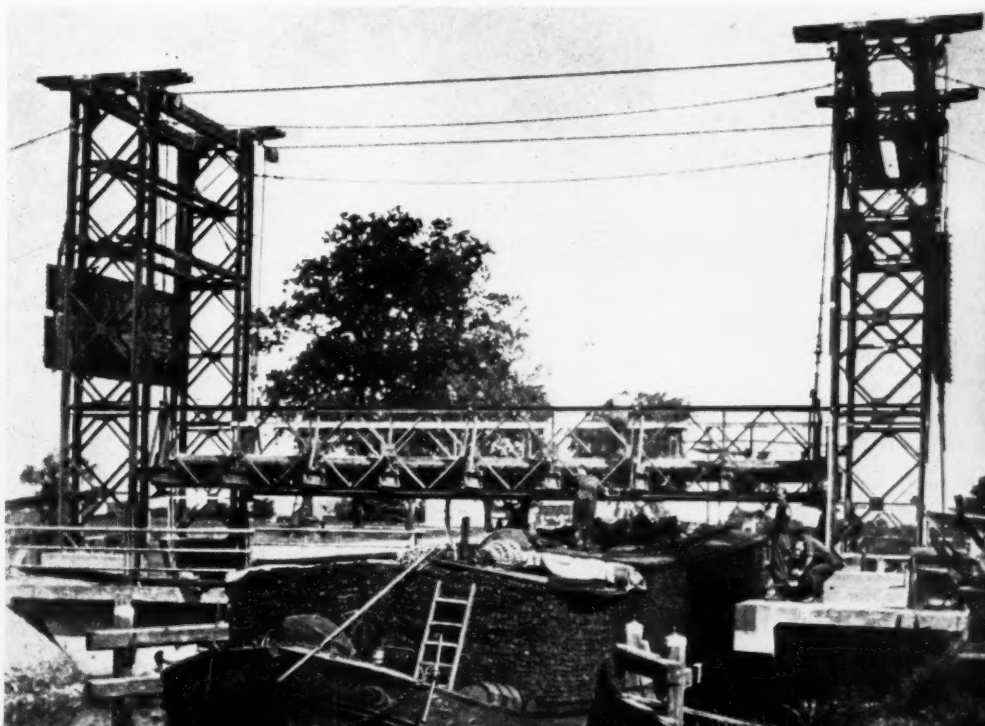
**ROAD PACKER** (right) drawn by International ID-9 diesel wheel tractor rolls North Carolina highway surface. Built by Timco Manufacturing Co., of San Antonio, Tex., and operated by Nello L. Teer Co., Durham, N.C., road-builder, compacting rig rides on ten pneumatic tires and weighs ten tons. Trailer box includes job tool box.



Page 103

**BAILEY LIFT BRIDGE** (below) at Hooghalen, Netherlands, replaces span destroyed during war. Guyed tower bents are framed of doubled Bailey trusses, while two single trusses bridging canal carry roadway. Counterweighted lift span is raised by hand winch.

Official Netherlands Photo



STEEL TANK FARM is erected at Mt. Rainier Ordnance Depot, Ft. Lewis, Wash., for long-range storage of Army equipment. Bolted tanks are modified surplus bulk-oil storage tanks with capacities of 26,000 and 13,000 cu. ft.



## ARMY EQUIPMENT CANNED IN

## STEEL OIL TANKS

Official U. S. Army Engineer Photos



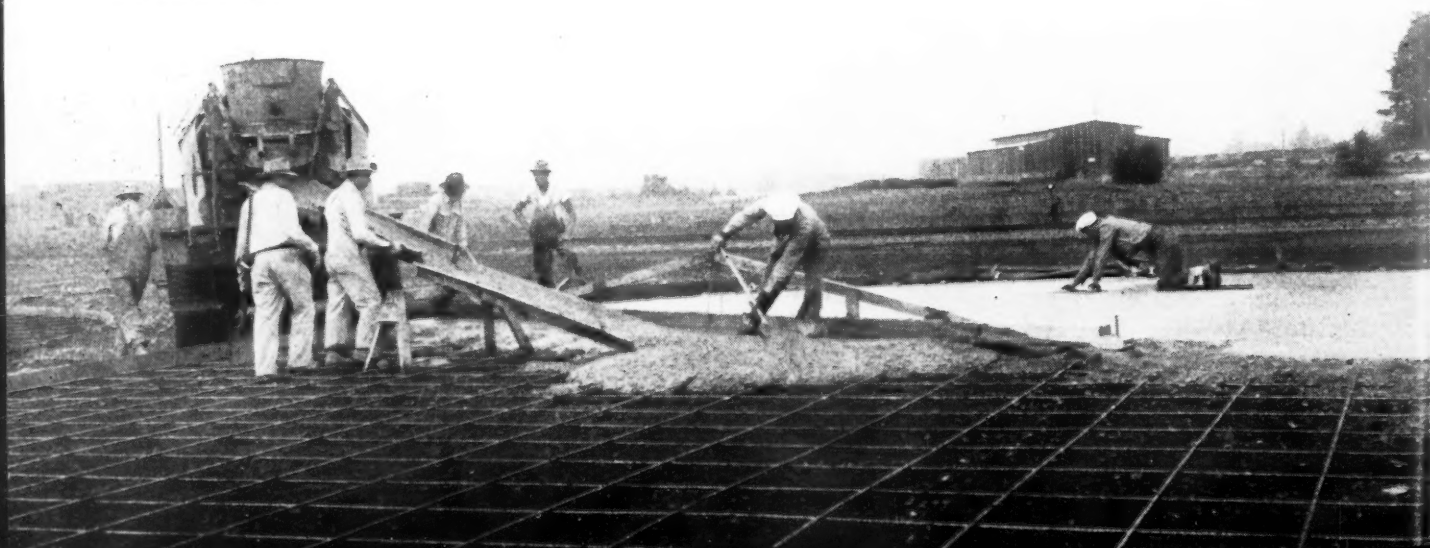
CHECKING PROGRESS at 33-tank storage farm are C. OSCAR NELSON, Ft. Lewis project engineer, Seattle District, U. S. Army Engineers, and D. W. McBETH, construction inspector. Contractor is Sam Bergesen, Tacoma, Wash.

CANNING ORDNANCE EQUIPMENT in surplus bulk oil tanks is the latest step in the Army's program for long-range storage of war material. Under this program, Sam Bergesen, Tacoma, Wash. contractor, is erecting for the Seattle District U.S. Army Engineers a storage tank farm at the Mt. Rainier Ordnance Depot, Ft. Lewis, Wash., where processed surplus vehicles and mechanical equipment will be preserved in sealed containers under controlled atmospheric and climatic conditions.

One of eight similar projects now under way throughout the country, the Ft. Lewis storage farm consists of 33 bolted steel tanks 55 and 38 ft. in diameter and 11 ft. high placed in two staggered parallel rows. The capacity of each of the larger tanks, of which there are 18, is 26,000 cu. ft., and the 15 smaller size tanks hold half as much. As originally used for bulk oil storage overseas, the tanks were

Page 104

TANK BASE IS 6-in. concrete slab reinforced with  $\frac{1}{2}$ -in. rods on 18-in. centers. Gravel subgrade and 2-percent slope provide adequate rain-water runoff.



PROCESS  
storage  
Stored m  
until roof



24 ft. high constructed of three rings of 8-ft. high sidewall plates. For vehicle storage, a row of 3-ft. high plates is substituted for the two top rings to give the tanks their 11-ft. height. The usual steel bottom is eliminated, and the individual tanks are floored with a 6-in. reinforced concrete slab primed with an RC-3 asphalt and topped with  $\frac{1}{2}$  in. of asphaltic mastic to make the base moisture-proof. Sidewall plates in 4-ft. widths are fastened to anchor bolts on 3-ft. centers imbedded in a 1x4-in. circumferential groove cast 4 in. inside the slab perimeter. After wall erection, the groove is filled with sealing compound, the tank is loaded with equipment for storage, and the roof is bolted in place.

#### Cans Dehumidified

When completely sealed, the tanks' exterior surfaces are cleaned of rust, paint, oil and dirt and are treated with a phosphoric-acid metal conditioner. The conditioner is then flushed off, and the outsides of the tanks are given one coat of rust-inhibiting enamel and one coat of aluminum paint. Individual 20-cfm. dehumidifying units mounted on the tank sides dry 13 of the storage cans, while the remaining 20, connected in series in banks of 10, are dehumidified by two 500-cfm. units mounted in separate shelters.

#### Project Personnel

General contractor for the storage project at Ft. Lewis is Sam Bergesen of Tacoma whose job superintendent and steel foreman are, respectively, Hugo Gronlund and William LeTrace. For the Seattle District U.S. Army Engineers, Col. L. H. Hewitt is district engineer, Lt. Col. R. E. Snetzer is operations officer, C. C. Arnold is chief of the construction branch, C. O. Nelson is Ft. Lewis project engineer, and L. G. Estey is supervising engineer.

PROCESSED EQUIPMENT is loaded into storage can after erection of sidewalls. Stored material is covered with tarpaulins until roof is placed.



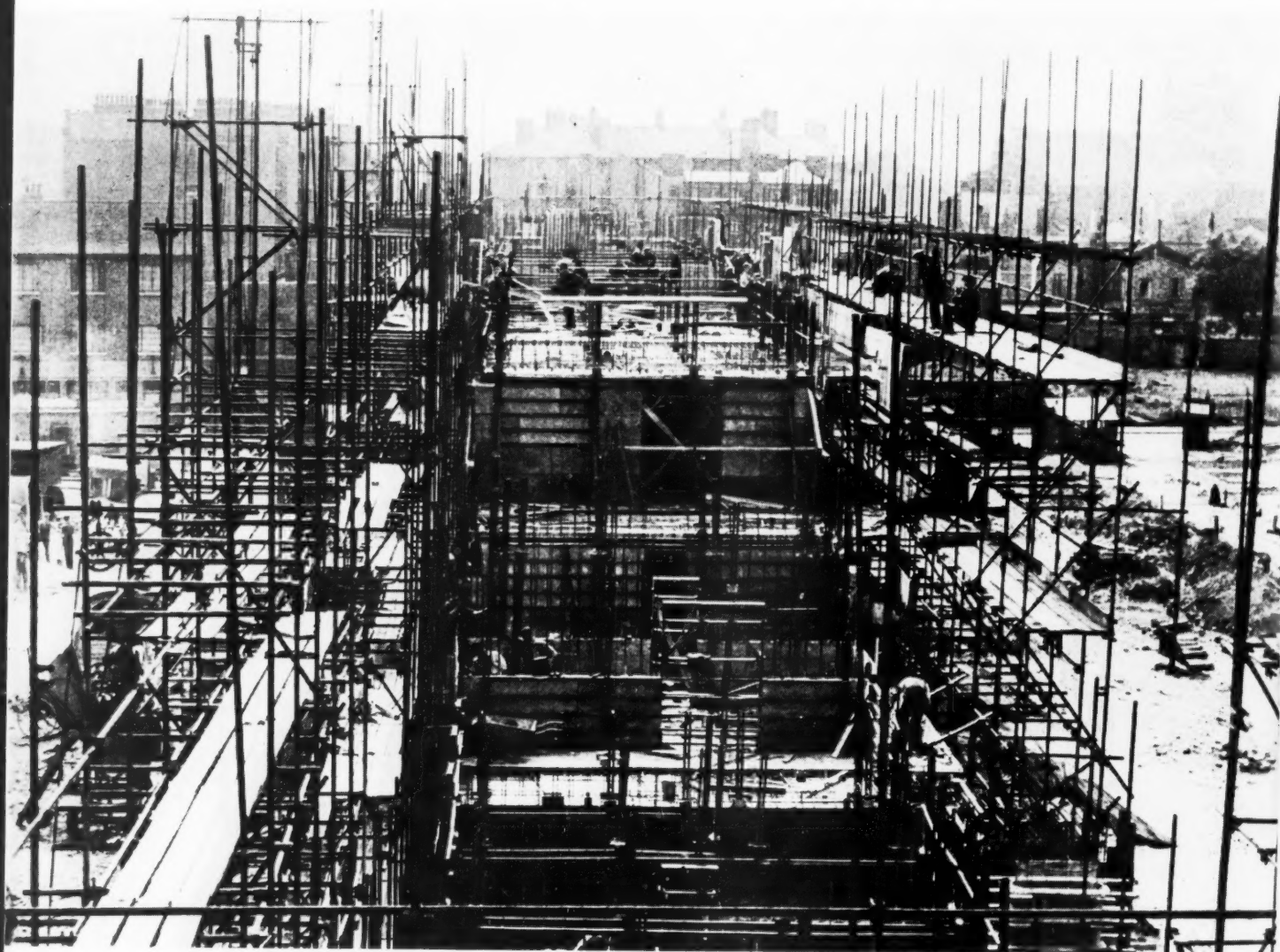
**SURPLUS OIL TANKS** 11 ft. high with diameters of 55 and 38 ft. store ordnance equipment. Dehumidifying units control moisture within cans.



**ASPHALTIC MASTIC DAMP PROOFING**,  $\frac{1}{2}$ -in. thick, is spread and rolled on tank base after RC-3 prime is mopped on. Usually, bases are treated before erection of sidewalls.



# BRITISH TRY Unconventional Methods To Speed HOUSING PROGRAM



**1** MONOLITHIC CONCRETE SYSTEM is what British call this method of construction being used on eight blocks of 4-story apartments in London. Buildings are series of concrete cells, with all walls made by erecting sound-proof and insulating boards within scaffolding as forms, then pouring concrete in place. Forms remain as wall surfaces. According to reports, this method will result in completing apartments by next April, eight months ahead of original schedule.

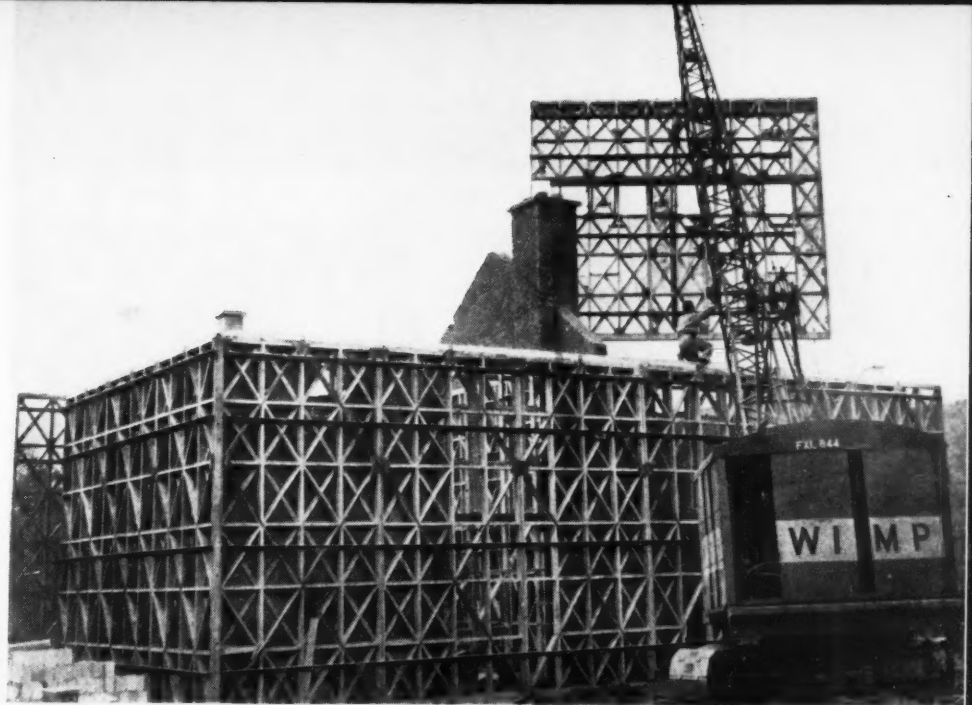
✦ **2** POROUS CONCRETE, made of large aggregate and cement, without fine aggregate, is being tried out on multiple family houses in England as combined structural and insulating wall. Chimneys are poured of same material. Ultimate exterior finish is stucco, inside walls are plastered.



BECAUSE OF WAR BOMBING that wrecked 4,500,000 homes, Great Britain's housing shortage is even greater than ours. As concrete is the most available material, unorthodox methods of concrete construction are being tried to speed up the British housing program. Three such methods are depicted here.

British Combine Photos

**3** UNUSUAL FORMS for coarse-aggregate concrete houses shown in Fig. 2 consist of trussed open panels sheeted with screen wire. Screen is sufficient form surfacing because concrete is poured very dry. Large panels, relatively light in weight, are handled with crane.



**4** PRECAST CONCRETE PANS (below) make up another type of house construction in Nutcham, England. Here panels are being set up against pipe scaffolding supports. Panels are full story, as shown at right, except for window openings, as shown at left. Figs. 5 and 6 show further details.

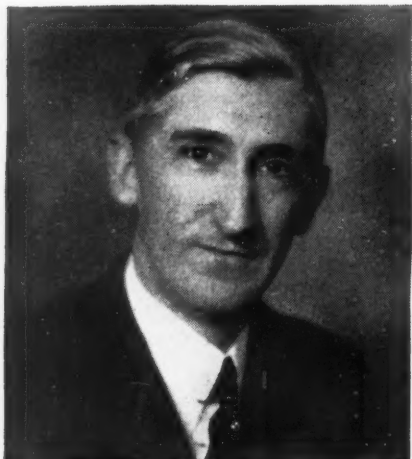


**5** BOTH EXTERIOR and partition walls (below) are of precast panel units with grooved sides, while roof framing is conventional wood. Note precast spandrels over windows and doors. These are known as Wates houses, named after designer.

**6** CONCRETE PANELS on Wates houses are fastened together by reinforcing rods set in vertical joint grooves and then packed in concrete. Notice horizontal joints are tongue-and-groove.



# Present and Accounted For...A PAGE OF PERSONALITIES



**NEW PRESIDENT** of American Society of Civil Engineers is **EDGAR M. HASTINGS**, Richmond, Va., chief engineer of Richmond, Fredericksburg & Potomac Railroad Co. He will take office at Society's annual meeting in New York in January.



**TWO OLD TIMERS** and youngster meet at recent A.G.C. fall convention in Philadelphia. Youngster is **ROBERT J. HENDERSHOTT** (left), young in comparison with his companions, but getting to be a veteran in A.G.C. affairs as manager of Associated General Contractors of Minnesota for more than a decade. In center is the venerable, lovable **RICHARD L. (DICK) HOPKINS**, who has been in contracting business at Albany, N.Y., as long as anyone can remember and was Cornell professor before that. A.G.C. past president **OSCAR B. COBLENTZ**, veteran head of McLean Contracting Corp. of Baltimore, is old reliable wheelhorse of every A.G.C. meeting.



**HARDWORKING HOSTS** of recent ASCE fall meeting in Kansas City, Mo., include (left to right): **JOHN C. LONG**, of Long Construction Co., president of local section of ASCE; **R. N. BERGEN DOFF**, of Howard, Needles Tammen & Bergendoff, general chairman of convention; and **E. B. BLACK**, of Black & Veatch, program chairman.

Page 108

**MEDAL OF MERIT** is presented to **THOMAS H. MacDONALD** (below, right), commissioner, Public Roads Administration, by **MAJ. GEN. PHILIP B. FLEMING**, Federal Works Administrator, in recognition of his outstanding services during war.



**FIRST POST-WAR ASSIGNMENT** of **COL. JAMES A. MacALARNEY** is as superintendent in charge of \$3,000,000 contract for furnishing and installing production equipment in new Ford Motor Co. assembly plant being built at St. Louis, Mo. Col. MacAlarney joined F. H. McGraw & Co., engineers and constructors, Hartford, Conn., upon his retirement from U.S. Engineers.



**DISCUSSING \$30,000,000** General Electric Co. Electronic Park job at Syracuse, N. Y., are **G. E. MILLER** (below, left), General Electric resident engineer, and **DAVE ARONBERG** (below, right), project manager for Walsh Construction Co., contractor on the big project. The guy in the center? One of construction's temporary prima donnas, **GLENN BROWNING**, eastern district sales manager for Lehigh Portland Cement Co. They roll out the rug for cement peddlers these days.







*Precisionbilt* FOR LONGER SERVICE  
**J&L WIRE ROPE**  
PERMASET PRE-FORMED

For dependability of loading shovels in rock quarries and open-pit coal mines specify J&L Precisionbilt Wire Rope. Many operators have reduced down-time, kept their crushing plants and washing plants working at capacity by using only J&L wire rope.

They find, too, that if it is J&L Permaset Preformed they get even longer service. Permaset spools better, handles easier, increases their profits by reducing maintenance. For more information write today for J&L Precisionbilt Wire Rope Catalog.

**J&L  
STEEL**

**JONES & LAUGHLIN STEEL CORPORATION**

**GILMORE WIRE ROPE DIVISION**

**PITTSBURGH 30, PENNSYLVANIA**

**J&L *Precisionbilt* PERMASET PRE-FORMED WIRE ROPE**



PIPELAYER, 1946 edition. Why worry about shortage of pipe-layers and plumbers when you can get help like this—if your job is rigging up a movie set in Hollywood. Pipe is a 20-ft. section of 8-in. aluminum alloy tubing and weighs only 30 lb. Pipelayer meets all specifications.

Wide World Photo



CONTRACTOR PUBLIC RELATIONS, 128 years ago. Kinkead, Beck & Evans, builders of three-span stone bridge over Yougheny River on National Pike in Pennsylvania, recorded their names on stone plaque set in railing. Bridge, soon to be submerged in reservoir, is being replaced by high-level structure.



BRITISH-OWNED CATERPILLAR BULLDOZER returns to peacetime operation in England after reputedly being first piece of British equipment to land in Germany. Here it is demolishing concrete ways, built to launch part of Normandy invasion forces, to open beach for resort purposes.

British Combine Photo

# JOB

## oddities



AIR DELIVERY of tractor repair parts is service provided by Ernest Cook Tractor Co., St. Louis, Mo., Allis-Chalmers dealer. When customer's tractor stalled 100 mi. from St. Louis, company president ERNEST COOK (in cockpit) took off in his private plane and dropped needed parts, packed in excelsior-filled box, on job site. Speeding him on his flight are E. LEROY SMITH (left) service manager, and ROY MacDONALD, sales manager.



MARSH BUGGY with corrugated, hollow steel wheels for flotation carries surveyors mapping oil concession areas in Venezuela for Creole Petroleum Corp. over swamps and jungle terrain. Both good traction and buoyancy are obtained from lightweight drum wheels. Called Kelpsch Marsh Buggy, it is built by Ironcraft, Houston, Tex.

Photo by E. J. Cleary, Engineering News-Record



# **VERSATILITY**

## **with**

# **Atlas DURAPLASTIC**

### **AIR-ENTRAINING PORTLAND CEMENT**

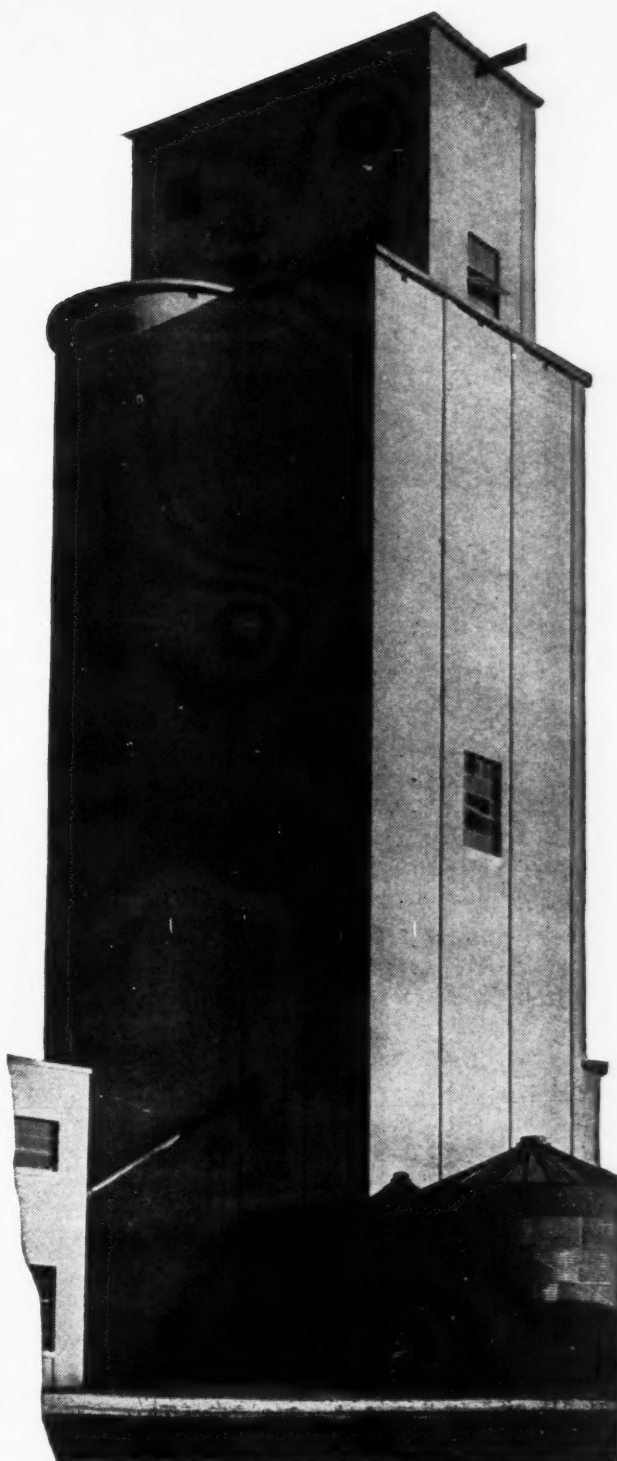
Experience on a wide variety of jobs shows that Duraplastic cement makes better concrete at no extra cost. It has been used successfully not only for millions of square yards of paving, but also for such other work as foundations, floors, walls, stucco, gunite, slip-form work and concrete products.

On slip-form work, for example, the job illustrated is but typical of others built by other engineers and contractors in Pennsylvania, Iowa and Wisconsin. On these jobs, characteristically, the Duraplastic concrete was more plastic, more cohesive and practically free from honeycomb and sand streaks.

Duraplastic complies with ASTM and Federal specifications and sells at the same price as regular cement.

**Send for further information.** Write to Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, N. Y.

**OFFICES:** Albany, Birmingham, Boston, Chicago, Cleveland, Dayton, Des Moines, Duluth, Kansas City, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, Waco.



**ELEVATOR** built with slip-forms for Janesville Mills, Inc., Janesville, Wis. Duraplastic cement used. Engineers, Chalmers and Barton, Hutchinson, Kansas; Contractor, Ford Construction Co., Janesville.

CM-D-44

AIR BUBBLES IN CONCRETE MAKE IT MORE DURABLE AND MORE PLASTIC

# ATLAS DURAPLASTIC

AIR-ENTRAINING PORTLAND CEMENT

MAKES BETTER CONCRETE AT NO EXTRA COST

TRADE MARK REG.  
U. A. C. CO.



"THE THEATRE GUILD ON THE AIR"—Sponsored by U. S. Steel—Sunday Evenings—ABC Network

# CONSTRUCTION EQUIPMENT NEWS

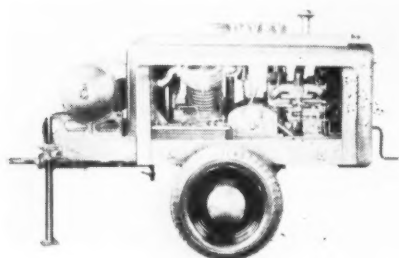
## DECEMBER 1946 REVIEW of Construction Machinery and Materials



**EARTH WAGON** — Clamshell-bottom dump Dixon wagon can be loaded with shovels, draglines, elevating graders or any conveyor or hopper method desired and will haul any material. Bottom of buckets will open to 6x10-ft. area. Dumping operation consists of single

$\frac{1}{2}$ -in. cable controlled single drum power unit actuated from truck or tractor transmission. Struck measure capacity is 16.2 cu. yd. Wagon will operate with any truck or tractor of 150 hp. or more, with 10-ton rating.—Dixon Wagon, Inc., 2801 Mission Rd., Alhambra, Calif.

**PORTABLE COMPRESSOR**—Model 60V is available in standard skid and two-wheel pneumatic-tired trailer mounting styles, also with flanged wheels for railroad work, also as "auto-air" compressor for truck mounting. It produces 60 c.f.m. at 100-lb. pressure and is designed for



heavy-duty service. Unit has one low-pressure cylinder with  $5\frac{3}{4}$ -in. bore and  $4\frac{1}{2}$ -in. stroke. High-pressure cylinder has  $3\frac{3}{8}$ -in. bore. Operating speed is 1225 r.p.m. Overall dimensions are: Length, 88 in.; width, 62 in. (tire track line,  $52\frac{1}{2}$  in.); height  $51\frac{1}{2}$  in. Compressor is powered by Hercules IXB engine.—Davey Compressor Co., Kent, Ohio.

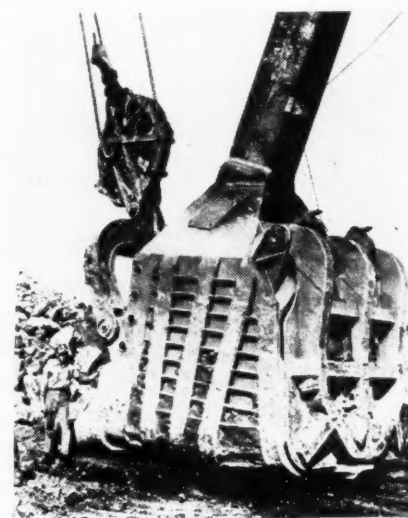


**FLAME - CUTTING ACCESSORY** — Magnetic straight edge guide for flame cutting steel plates and shapes with hand torch is made of specially heat-treated aluminum alloy that will not warp from heat, is lightweight and resistant to corrosion. Aluminum holders are provided with

specially cast Alnico magnets which exert 30-lb. pull and hold straight edge rigidly in place. Detachable holders can be secured at any point along straight edge by means of thumb screw so that either, or both, ends can be extended beyond edge of plate to be cut. Aluminum collar is attached to cutting tip by means of thumb screw and rides along edge of angle. This collar has inside diameter of  $\frac{5}{8}$  in. so that it can be

used on any size cutting tip. Holders are made with swinging arm that permits straight edge to be changed from right-angle cutting position to 30 deg. scarfing bevel by simply loosening thumb screw. Standard Cut-O-Guide straight edges are 3 ft. long, with longer units available on special order. Extra holders are also available for use in holding templates for contour cutting.—Universal Power Corp., 765 Carnegie Ave., Cleveland 15, Ohio.

**SHOVEL DIPPER**—Giant shovel dipper is capable of moving enough earth at one bite to fill room 12x10-x9 ft. On 5561 shovel, this dipper can move giant load two-thirds of city block and drop it on top of seven-story building. Construction



of 40-yd. dipper and newly-designed handle for it was made possible by application of war-developed steels, which cleared way for dipper and handle design which is 30,000 lb. lighter than materials formerly used in achieving same strength.—Marion Power Shovel Co., Marion, Ohio.

**CATHODIC RECTIFIER UNIT** — This unit stops rust and corrosion by eliminating electrolytic action on metal being protected. Flow of current in tank or pump is reversed by introducing cathode which is charged by rectifier. Metal of tank or pump thereby becomes cathode and is not subject to corrosion or rust. Unit is contained in weather-proof steel cabinet and has d.c. output capacity of 2-5 amp. at 31-50 v. (100 to 150 d.c. w.), sufficient to protect submerged areas up to 10,000 sq. ft. Preferred a.c. input is 110-3-60, but unit can be equipped to take other a.c. characteristics. Step controls up to 50 D.A. with moving coil type ammeter and voltmeter are standard.—Trimount Instrument Co., 37 W. Van Buren St., Chicago 5, Ill.



# THE LABOR CRISIS

## ...“Absolute power corrupts absolutely”

**T**HE NEW CONGRESS is going to overhaul the federal laws governing organized labor.

If the election returns left any doubt about that, John L. Lewis has removed it by torturing the nation with its second soft coal strike in six months.

If, however, the overhauling is to get at the roots of our labor troubles, it must go further and deeper than most of the proposals would go. Indeed, it must not stop until it has dealt decisively with that most basic cause of devastating trouble—the entrenched monopolistic power of enormous international unions, now concentrated in a handful of union leaders. Industry-wide collective bargaining is one outgrowth of this power.

“Power tends to corrupt, and absolute power corrupts absolutely.” That great truth, phrased by the historian Acton, is as true of labor leaders as it is of business leaders, princes or potentates. It is also true that John L. Lewis and some of his fellow labor leaders now wield what approaches absolute power in their respective domains. Failure to recognize these facts and act on them can make a tragic mockery of the present opportunity to restore good sense and good order to our labor relations and our national life.

To realize this opportunity the labor monopoly must be made a major target.

In the minds of many people, particularly in the business community, the root cause of our labor troubles is to be found in the National Labor Relations Act, commonly called the Wagner Act. They feel that if they could get rid of the one-sided handling of a number of key labor problems provided by that act and its administrators, we would have the legislative part of the problem of creating good labor relations pretty well solved.

To be sure, there is occasion, long overdue, to balance up the lopsided treatment of labor relations by the Wagner Act and those who apply it. It has been so interpreted and applied as to deny free speech to employers. On occasion it has ex-

tended the special protection of the federal government to workers striking to force employers to break the law. It has done the same for workers striking to force the federal government to change its policy the way the strikers want it changed.

The Wagner Act has required employers to bargain with unions, but imposed no companion obligation upon unions to bargain with employers. It has given protection to workers who have broken their agreement by striking. It has been applied so as to break orderly lines of management by encouraging and giving special protection to union organization of foremen who, to do their work efficiently, must represent management. Abuses such as these should be cleaned up, and soon.

### Monopoly is the Target

But if perfection were attained in eliminating all of the abuses stemming from the Wagner Act, numerous and grievous as they are, the basic problem of establishing the legislative foundations of sane and safe labor relations in the United States would by no means be solved. John L. Lewis and his fellow labor dictators would, no doubt, be annoyed, but their power would not be seriously impaired. *That power is derived from monopoly control of labor.* Just as in the case with any other kind of monopoly power, it will only be made subservient to the public interest by attacking it at the source and smashing it.

*The way to do that is to apply the anti-monopoly laws to monopolies in the field of labor just as they are applied to business and industrial monopolies.* At the same time more vitality should be pumped into these laws all along the line.

When our basic anti-monopoly law, the Sherman Antitrust Act, was passed in 1890, it was designed to apply to economic monopolies of all kinds, and was so held by the courts. Organized labor sought exemption from this law, largely on the ground that its bargaining power was weak, as compared with that of industrial corporations. In recent decisions, a majority of the United States Supreme Court

justices have held that, when combined with the Clayton Act of 1914, the Norris-La Guardia Act of 1932 gives organized labor virtually complete exemption from the antitrust laws.

In the meantime, the relative weakness in bargaining power which was made the occasion for exempting organized labor from the antitrust laws has become a myth. In soft coal, John L. Lewis is the monopolist. Through his United Mine Workers he controls about 90% of the miners. No one of the thousand or more highly competitive companies engaged in soft coal mining controls more than about 5% of the output.

In steel the monopoly control is that of Philip Murray's United Steel Workers whose organization represents well over 80% of the production workers in that industry. United States Steel, the corporate "giant," controls only about one-third of the steel making capacity. In automobiles the United Automobile Workers represent about 90% of the production workers. A year ago the union's officers flaunted their monopoly power by announcing plans to pick off one automobile manufacturer after another by a series of centrally controlled strikes.

#### Industry-Wide Bargaining

Confronted by the rise of government-fostered monopoly power in the hands of organized labor, employers in some industries have sought to match it by joining together for collective bargaining on a more or less industry-wide basis. In other industries, notably steel, the federal government, through the War Labor Board, took the lead in forcing a pattern of industry-wide bargaining. Bedevilled by a myriad of cases, the Board thus sought to settle scores of them in the steel industry by one action.

It is easy to understand how an employer, confronted by an industry-wide monopoly of labor, would be tempted to join with his fellow employers in an industry-wide bargaining group. In that way he might see a chance to establish something like equality in bargaining power.

However, if the employers' bargaining group were as effective as the union in creating a monopoly set-up, it would merely confront one monopoly with another. That, in turn, would heighten the chances of having either a devastating head-on collision as a result of failure to agree, or having the two monopolies reach an agreement at the expense of the consuming public.

Actually, however, the chances that employers can create an industry-wide bargaining group as

tight as that created on the side of labor by union organization are virtually zero. For if a group of employers were to agree to shut down in unison or take other united steps to balance the bargaining power created by the threat of a monopolistic union to strike, they would unquestionably find themselves on the receiving end of an indictment for violation of the federal antitrust laws.

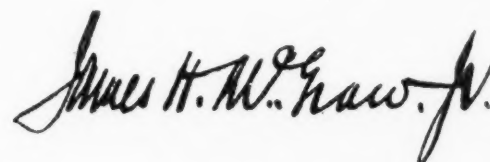
#### To Break the Monopoly

Thus, both from the point of view of the public and the point of view of the employer, industry-wide bargaining is no effective offset to the monopoly power created by industry-wide unions.

**The only way to cope with this monopoly power is to subject it to the anti-monopoly laws in the same way business and industrial management are subjected. In the process industry-wide labor monopolies would be cut down to safe size, possibly by limiting the percentage of workers in any industry who are permitted to belong to a single labor organization.**

Also application of anti-monopoly laws would clean out local pockets of labor monopoly which block the way of industrial progress. As matters stand, the freedom of unions from control by the antitrust laws permits organized workers in one city to refuse to install equipment shipped in from another city, thus establishing private tariff walls. It also permits organized workers to refuse to install or work on materials made by other workers whose union affiliation, or lack of it, they do not like.

If the anti-monopoly laws were applied to organized labor, boycotts of this sort would be outlawed. In the aggregate they now take a tremendous toll for no legitimate purpose. But primarily John L. Lewis and a handful of his fellow labor dictators might be cut down to a size that can be safely accommodated by the American democracy. If that is not done, the last great opportunity to give industrial and political democracy a chance to work, in its last great stronghold, will be lost. From such a tragic turn of events no one would lose more than the American worker.



President McGraw-Hill Publishing Company, Inc.





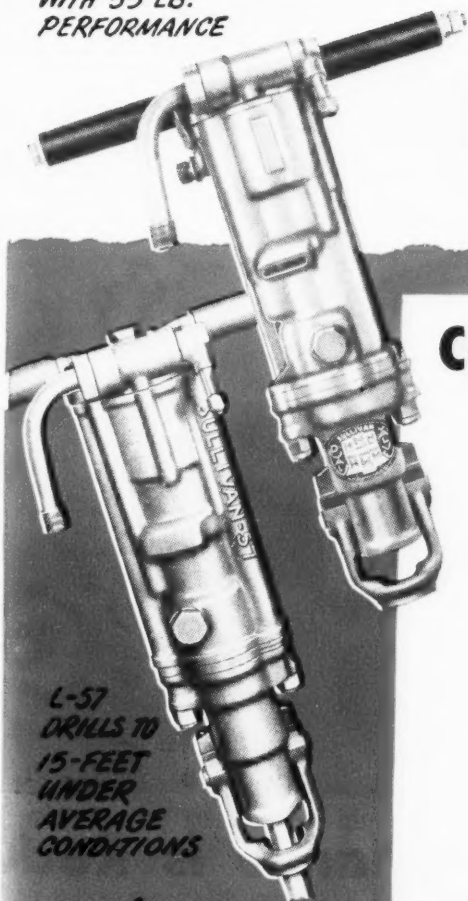
*Less Power To*  
**DRILL MORE FOOTAGE**  
*with*

**SULLIVAN**

**SILVER STREAK**

L-47  
45-LB. CLASS DRILL  
WITH 55-LB.  
PERFORMANCE

**CADMIUM PLATED  
ROCK DRILLS**



L-57  
DRILLS TO  
15-Feet  
UNDER  
AVERAGE  
CONDITIONS

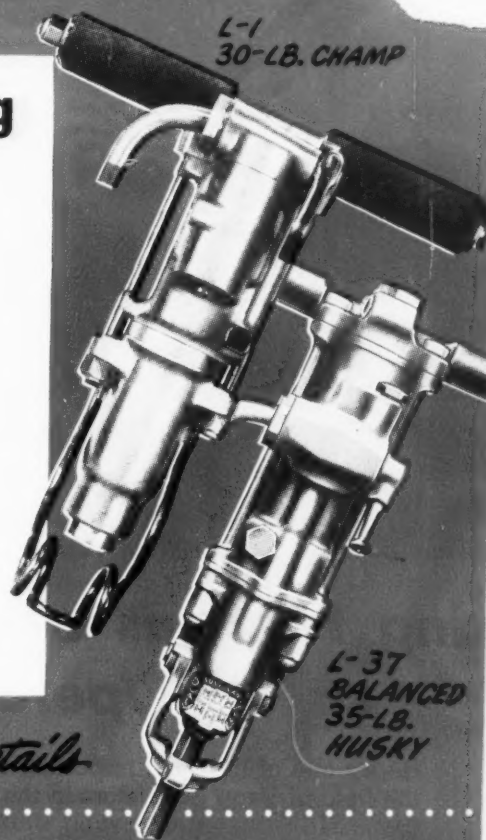
**Cadmium Plating  
means**

**LONGER LIFE**

**BETTER  
LUBRICATION**

**NO RUSTING**

**PREVENTION  
OF RUCKING**



L-1  
30-LB. CHAMP

L-37  
BALANCED  
35-LB.  
HUSKY



*Write for Bulletins Giving Full Details*

*Consult a  
Joy Engineer*

**SULLIVAN DIVISION**

**JOY MANUFACTURING COMPANY**

GENERAL OFFICES: HENRY W. OLIVER BUILDING

PITTSBURGH, PENNSYLVANIA

WAD-C-21

*Look to*

**P&H**

# **NOW A MAGNET** *Eliminates* **SWING CLUTCH TROUBLES**



**Swing Frictions are out . . . Maintenance is Reduced  
. . . Operation is Smoother, Faster**

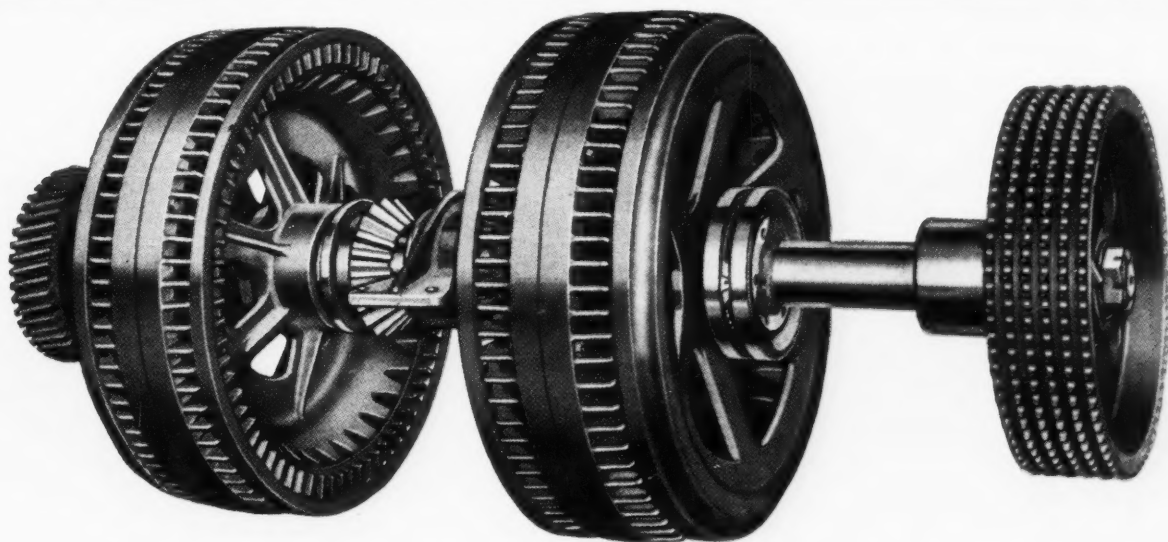
Here's one of the most important developments in the field of large excavators in the past 20 years—the P&H Magnetorque Swing Unit. By employing electro magnetic forces instead of the usual mechanical swing clutches, P&H has eliminated the greatest single source of wear—and trouble—on large friction machines. You will have none of the old maintenance problems—no more linings to replace, no adjustments to make. For there is no wear—no mechanical contact between driving and driven members. The P&H Magnetorque Swing Unit will last the entire life of the machine.

Now offered as standard equipment on the P&H Model 1055, the Magnetorque Swing unit results in higher operating efficiency, smoother, faster swinging and steadier digging with cushioned acceleration and deceleration.

On large construction projects or in open pit mines and quarries where profits depend upon continuous operation, the Magnetorque is another P&H added value that pays for itself many times over. The operator, too, will like its many advantages. Ask for complete information.



# for Added Values



## the NEW P&H MAGNETORQUE Swing Unit

Mounted in the same relative position on the machine as the old style swing jackshaft assembly, the Magnetorque units, carried on self-lubricated anti-friction bearings, transmit power for both swing and propel motions. But there is no friction—no mechanical linkages—no metal-to-metal contact. Instead, there is only a gap of air through which electro-magnetic forces are transmitted. Excitation is supplied by a small generator on the main engine and controlled from the operator's station.

Always the hardest-working part of an excavator, the swing unit has now become one of the simplest and least troublesome. Maintenance is reduced to a new minimum. Swing speeds are higher, too, with more accurate starting and stopping. And steadier, easier digging increases daily output.

P&H Excavators are built in sizes up to 6 cubic yards, gasoline, Diesel or electric power. Ask for literature on the size you need.

**P & H**

**EXCAVATORS**

4494 W. National Avenue  
Milwaukee 14, Wisconsin

**HARNISCHFEGER**  
CORPORATION

EXCAVATORS • ELECTRIC CRANES • ARC WELDERS • HOISTS • WELDING ELECTRODES • MOTORS



Stripping coal in Pennsylvania. This P&H Model 1055 dragline with Magnetorque swing unit has set up an outstanding record for continuous high production and low yardage costs. Equipped with 80 foot boom, it handles a 4 yard bucket.



# It's the *Curve* that does it

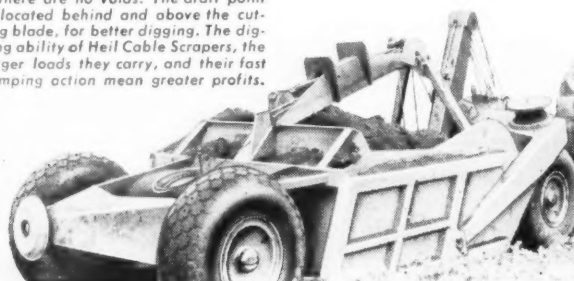
**... earthmoving costs are lower when Heil Cabledozers are on the job**

In addition to proper balance and strength, Heil Cabledozers have that something extra that puts them way ahead in dirt-moving ability. It is the Heil scientifically contoured blade. This specially curved blade, with its reversible cutting edge, was designed and de-

veloped by Heil engineers after studying and analyzing dirt-moving operations under the widest variety of conditions. Its advantages are better digging and rolling action — greater load-handling ability.

Ever-increasing demands from contractors all over the world prove that earthmoving costs are lower when Heil Cabledozers are on the job. Join the long list of satisfied Heil Cabledozers users today. See your International Industrial Power Distributor.

Heil Cable Scrapers have many unique, cost-cutting features. The bowl design is different. It permits the loading of 15% more material in the same length of time with the same drawbar horsepower — there are no voids. The draft point is located behind and above the cutting blade, for better digging. The digging ability of Heil Cable Scrapers, the larger loads they carry, and their fast dumping action mean greater profits.



## THE HEIL CO.

GENERAL OFFICES • MILWAUKEE 1, WISCONSIN



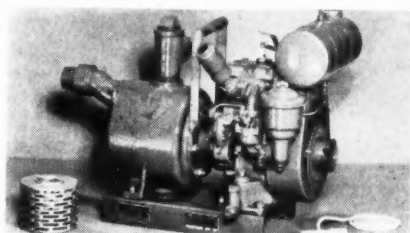
**INSULATION**—Styrofoam is Styron expanded 40 times to produce pure white, lightweight, multicellular mass of foam-like material with low thermal conductivity, good structural strength and resistance to



moisture and water, mold and rot. Atmospheric exposure does not affect it adversely and, like Styron from which it is derived, it does not lose its strength at low temperatures. It shows no tendency to disintegrate or settle.—**Dow Chemical Co., Midland, Mich.**

**HYDRAULIC GOVERNORS**—New principle of governing, combining hydraulics and centrifugal force, has resulted in four standard types of governor: automotive, constant speed, overspeed shutoff and universal. Governors, adapted to any gasoline or diesel motor, are available in all standard sizes.—**Milwaukee Lock & Mfg. Co., 730 W. Virginia St., Milwaukee 4, Wis.**

**CENTRIFUGAL PUMPS**—Self-contained, self-priming centrifugal contractor's pumps, known as Humdingers, are available in sizes from 1½ to 8 in., with 4,500- to 125,000-g.p.h. capacities. Model 4½M (pictured) is 1½ in. unit. Recently



perfected priming device utilized in this model eliminates necessity of troublesome automatic valves, counterweights, etc., and guarantees full pumping capacities in as little as 15 sec. Featuring only one moving part, it moves more than 2 tons of water per hour during continuous operation.—**Ralph B. Carter Co., Hackensack, N. J.**

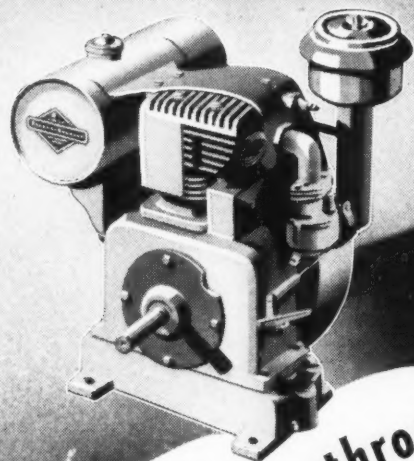


# Parmanco

## MECHANICAL FEED HORIZONTAL DRILL WITH TRACTION DRIVE

Heat-treated gears are used in this transmission and spur gear reductions, with an ample factor of safety for the operation of machine under all conditions. Link-Belt bearings of extra size are used throughout. Augers are connected to main drive shaft through a self-aligning chuck of ample size, in which is secured the drive shaft by two shear pins which provide sufficient safety to rest of machine. The machine is raised or lowered to a height of 36 inches by jacks on front of machine, and rear of machine is mounted on two pneumatic-tired wheels which also have a 36-inch range of adjustments. The machine permits the drilling of a controlled-angle hole, which makes possible a great saving in the use of explosives through the cantilever effect of this controlled-angle drilled hole.

**PARIS MANUFACTURING COMPANY**  
**PARIS, ILLINOIS**



**Now coming through in  
ever-increasing quantities  
and well worth waiting for!**

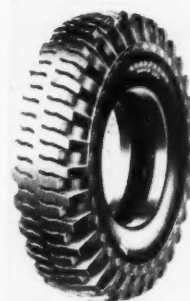
**BRIGGS & STRATTON  
ENGINES**

**V**alue-wise users, dealers, and manufacturers of gasoline powered equipment insist: "We can't take chances on untried engines. Experience has taught us that long, successful operation depends so much on the engine, we want our appliances, farm machinery, and industrial equipment powered **RIGHT** — with Briggs & Stratton air-cooled engines." Yes—with their 26-year record Briggs & Stratton engines are well worth waiting for. Deliveries are improving with our increased production. Continue to demand "powered by Briggs & Stratton"—and be assured of years of dependable, trouble-free performance.

**BRIGGS & STRATTON CORPORATION**  
MILWAUKEE 1, WISCONSIN, U. S. A.



*Air-Cooled Power*



**TRUCK TIRE —** Production of Road Lug tire in sizes 7.00-20 through 12.00-24 has begun and ultimately sizes 13.00-24 and 14.00-24 will be made available. Road Lug is particularly suitable for use in such

services as logging, quarrying, and strip mining under conditions where heavy loads must be hauled out on rocky, rutty or stump-obstructed roads to surfaced highways for long hauls to ultimate destination. It is claimed that it is capable of resisting cutting and bruising, providing traction in soggy going and delivering exceptional mileage on improved highways in addition. Tires are constructed with rayon cord carcass, tread and sidewalls with natural rubber content equal to prewar tires of same size, extra heavy layers of cushion rubber between plies and extra heavy rayon breaker. All sizes have multiple beads of high carbon steel wire.—Goodyear Tire & Rubber Co., Akron, Ohio.

**ADJUSTABLE CURVE DRAFTING INSTRUMENT —** This instrument forms arcs of circles over wide range of adjustments and may be calibrated in degree or radius of curvature to any scale desired. It is



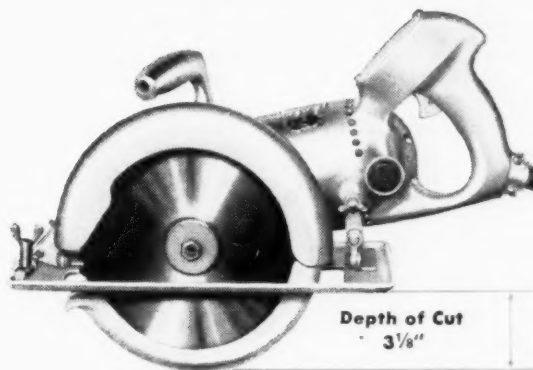
available with or without irregular curve adjustments. Instrument 1½ ft. long has 0- to 4-deg. range or 12 ft. to infinite. It is now being used in state highway drafting departments for highway curve plotting.—Albert G. Daniels, 109 Chalmers St., Winnsboro, S. C.

**AIR-DIFFUSER DAMPER—**Simplified, lightweight construction of air volume damper, standard feature accessory of Kno-Draft high velocity air diffusers, cuts down number of parts required. Aluminum construction throughout lessens weight and increases efficiency. Cylindrical damper is raised or lowered by turning extended shank of operating screw and air volume may be quickly and easily obtained. As damper is integral part of diffuser, no additional installation time is required on job.—W. B. Connor Engineering Corp., 114 East 32nd St., New York 16, N. Y.





# Makes Extra- Deep Cuts **FASTER!**



*This Husky 9-inch "Quick Saw" \* is  
Powered for Heavy-Duty Sawing*

There's nothing like a Black & Decker 9" Quick-Saw for ripping hours off heavy construction sawing jobs! This powerful saw cuts to a maximum depth of 3 1/8" —ten times faster than hand sawing. And it's built to take the rough spots without slowing up or overheating.

With a Quick-Saw, you can rip, crosscut, angle, groove, dado—on studs, roof trusses, rafters, joists, stair stringers, all kinds of heavy structural lumber—even save time by stacking boards for sawing. What's more, the same saw can be equipped with blades and abrasive discs for cutting compoboard, slate, tile, marble, asbestos, galvanized sheet, other thin or non-ferrous metals. Yet, with all its power and ruggedness, the Quick-Saw is perfectly balanced for easy handling.

Ask your nearby Black & Decker Distributor for full details on timesaving Quick-Saws. And write today for your free copies of our illustrated, informative "Electric Saw Handbook" and complete catalog. Address: The Black & Decker Mfg. Co., 659 Pennsylvania Ave., Towson 4, Maryland.

LEADING DISTRIBUTORS  EVERYWHERE SELL

## Black & Decker

PORTABLE ELECTRIC TOOLS

\*Trade Mark Reg. U. S. Pat. Off.

**USED THE WORLD OVER**



**RUGGED**  
IS THE  
WORD FOR  
**PERFECTION**  
BODY *and* HOIST  
**CONSTRUCTION**



Write for name of nearest Perfection Distributor

**THE PERFECTION STEEL BODY COMPANY**  
GALION, OHIO

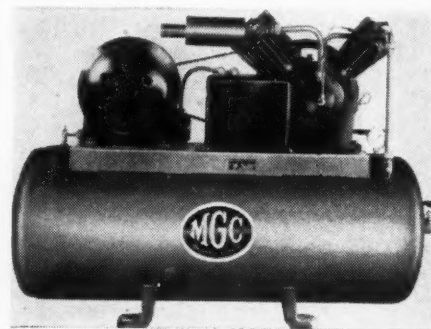
**PERFECTION**  
STAKE and DUMP BODIES  
HYDRAULIC HOISTS



**FOR ANY TRUCK**  
STANDARD or SPECIAL UNITS  
IN ALL SIZES • FOR ANY USE

**TWO-STAGE AIR COMPRESSORS**

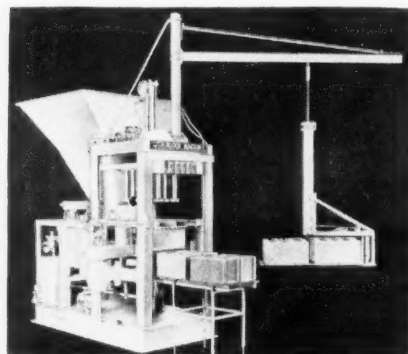
—Five new models of Super-Duty two-stage air compressors will be available in 7, 9, 13, and 21-cu. ft. capacities and all are furnished with 80 gal. storage tanks; 60-gal. tank is optional with 7-cu. ft. unit. Com-



pressors are of self-contained type with motor and compressor mounted on one-piece steel sub-base, which in turn is electrically welded to 80-gal. horizontal air receiver. They are fully automatic and controlled by centrifugal type unloading valves which guarantee against motor burn-out.—**Motor Generator Corp., Division of The Hobart Bros. Co., Troy, Ohio.**

**VIBRATING STRIPPER —**

Lith-I-Block machine is automatic, plain pallet, vibrating stripper, simple and compact in design. Use of air for automatic pallet feed, stripper head, pallet support and feed draw reduce maintenance to minimum. Machine produces two 8-in. blocks per cycle of operation with rated capacity of 480 8-in. blocks per hour. All stand-



ard sizes of block, as well as brick and chimney block can be produced on this machine, all on plain pallet. Changes to various sizes are accomplished rapidly by interchanging hardened abrasion resistant mold box liners and cores. In most cases changing from one type of unit to another can be done in as little as ten minutes. Machine has unique control, inasmuch as operator of off-bearer, by means of electric control switch on off-bearing device, can hold stripper head up for inspection, removal of foreign matter, or can drop it any number of times at will.—**Lith-I-Bar Co., Holland, Mich.**





# GENERAL'S OFF-THE-ROAD TIRES

*Give you*

**TOP-QUALITY...  
TRACTION...  
ECONOMY...**

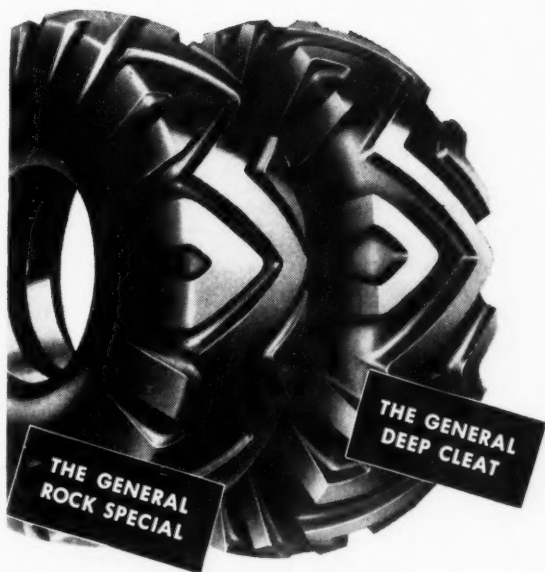
**20 TON LORAIN MOTO-CRANE  
OF  
THEW SHOVEL COMPANY**  
*Equipped with General Deep Cleat Tires*

**DEEP-BITE TRACTION** . . . with tread and carcass built for the most rugged wear, the General Off-The-Road Tire gives longer, low-cost tire service to meet an exacting industry's demand for the best.

Built to America's top standard of Top-Quality, General's Off-The-Road Tires are *shock-absorber* constructed to insulate against the shocks and impacts of hard, rough wear.

Shock absorber construction gives double life to your General Tire . . . long life on the original tire . . . a second life through Kraft System *balanced* recapping.

The General Off-The-Road Tire is your best choice for premium tire performance that pays big dividends in savings.



**THE GENERAL TIRE & RUBBER CO.**  
AKRON 1, OHIO



## **GENERAL OFF-THE-ROAD TIRES**

## Less Weight with Ample Strength — in All-Manganese Steel Welded Type Dipper

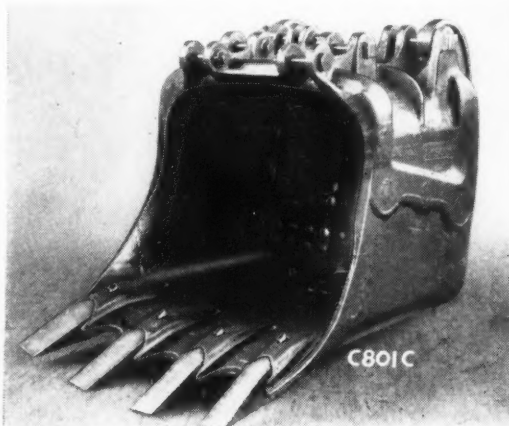
To meet demands for a dipper with optimum durability and minimum overall weight the Amsco All-Manganese Steel Welded Type Dipper has been developed and thoroughly service-tested. These dippers have stood up staunchly in such rugged applications as steel slag recovery, iron ore mining and handling coral rock.

Design, in a dipper, affects durability, but the use of austenitic manganese steel, "the toughest steel known," as the sole material of construction in these dippers, except for small complementary parts, assures maximum resistance to impact and wear.

The important factors of design in a power shovel dipper are those which contribute to faster, more efficient digging, full loading, with maximum proportion of power consumption applied to payload, quick dumping and longer life. All these characteristics are embodied in the Amsco All-Manganese Steel Welded Type Dipper.

When fitted with a door and bail of adequately strong design, this dipper is somewhat lighter in weight than the Amsco Renewable Lip Dipper, thousands of which have been put into use since 1923. If made

with a lightly constructed door and hinges, as generally used in light weight dippers, it will not exceed the weight of any composite-type fabricated dipper that is sufficiently strong to do a good job. The dippers illustrated have the advantage of a manganese steel body welded into an operating unit. The body is as strong



C-801C. Amsco All-Manganese Steel Welded Type Dipper (Patented)

and homogeneous as if made in one piece. At the same time it is possible to remove a worn front and weld on a new one without destroying the back.

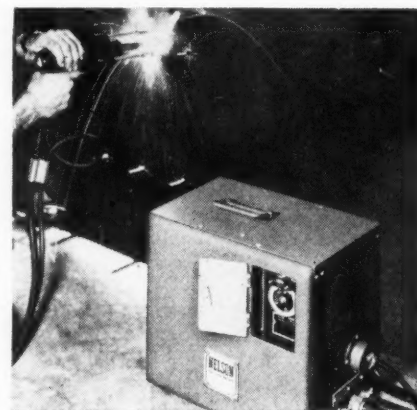
The Amsco All-Manganese Steel Welded Type Dipper is made in capacities of  $\frac{3}{4}$  yd. and up. Sizes  $\frac{3}{4}$  to 2 yd. are made in two body pieces; front and back. Sizes over 2 yd. are made in four pieces; front, back and two side plates. Write for full information.

*Joliette Steel Limited, Joliette, Quebec, owned by American Brake Shoe Company, produces and sells Amsco Manganese Steel Castings in Canada.*



A-468. 2 yd. Amsco All-Manganese Steel Welded Type Dipper on Lorain "82" shovel; used for handling coral rock in New Guinea.

**STUD WELDING**—Manual stud welding gun weighs only 5 lb. and is as portable as electric drill. It welds studs in any position and handles studs from 1/8 in. through 3/4-in. in diameter, up to 8 in. long. Automatic timer furnished with gun assures uniform high quality welds.



No special skill is required and average operator can install from 100 to 200 studs per hour. Nelson flux-filled studs are available in wide range of types and sizes. Construction applications of this equipment include corrugated asbestos and sheet metal roofing and siding; wireways, pipe and conduit; furring and nailing strips; sprinkler systems.—Nelson Sales Corp., Lorain, Ohio.

## GRIFFIN

R  
I  
F  
F  
I  
N

WELLPOINT  
SYSTEMS

JETTING  
PUMPS

FOR SALE  
RENT

Prompt Shipments

Send for our New 60 page  
illustrated catalog

"GRIFFIN POINTED WELLPOINT  
FACTS" chock full of latest infor-  
mation on Wellpoint Systems for  
dewatering, emergency and per-  
manent water supply systems,  
also information on pressure  
pumps and data for jetting.

GRIFFIN WELLPOINT CORP.

881 EAST 141st ST. • NEW YORK 54, N.Y.

Phones: MEltrose 5-7704-5-6

**AMSCO**

Foundries at

Chicago Heights, Ill.; New Castle, Del.;

Denver, Colo.; Oakland, Calif.;

Los Angeles, Calif.; St. Louis, Mo.

Offices in Principal Cities

AMERICAN MANGANESE STEEL DIVISION  
CHICAGO HEIGHTS • ILLINOIS

AMERICAN  
Brake Shoe  
COMPANY





*"After all Mister*

... you didn't have to take the hard way to discover whether HUBER ROAD ROLLERS are husky machines built to take a lot of punishment. Every HUBER ROLLER owner would confirm this as well as enthusiastically tell you about Huber's quick and easy hydraulic steering — ample speed and power—short wheel base for real maneuverability—simplified design—minimum maintenance —unusual economy."

THE **HUBER** MFG. COMPANY • MARION, OHIO, U. S. A.

# HUBER

*3 Wheel • Tandem*  
ROAD ROLLERS  
*and*  
MAINTAINERS

# PLAY *Safe!* PUT GOODALL *Quality* HOSE ON THE JOB!



## "INFERNO" STEAM HOSE

A Goodall "Standard of Quality" product built to assure the ultimate in efficiency and safety on your toughest steam hammer jobs. Carcass combines high-tensile asbestos, mandrel cured and wired. Made for working pressures up to 200 lbs. and super-heat steam temperatures not exceeding 400° F. Sizes 1/2" to 2 1/2", in maximum lengths of 50 feet.



## "SUBWAY" HEAVY DUTY AIR HOSE

Another famous "Standard of Quality" product, made to deliver a steady pulse of power to your drills, spades and other air equipment. Construction consists of a long-wearing, oil-resistant tube; highest quality duck carcass; smooth, tough red cover. Sizes 1/2" to 1 1/4".



OTHER GOODALL PRODUCTS FOR CONTRACTORS include water, suction and discharge hose; conveyor and transmission belting; packing; waterproof boots and clothing.

Contact Our Nearest Branch for Details and Prices.



# GOODALL

RUBBER COMPANY • INCORPORATED

THE GOODALL-WHITEHEAD COMPANIES

Philadelphia • Trenton • New York • Chicago • Pittsburgh • Boston  
Los Angeles • San Francisco • Seattle • Salt Lake City • Houston

Factory—Trenton, N. J.

Established 1870

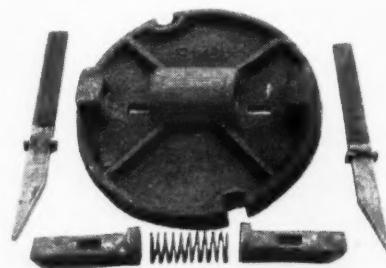


**REAR AXLES**—Designed to give heavy-duty truck operators maximum pulling power and speed in same truck, two new two-speed rear axles, S-300 and U-300, are announced. S-300 is intended for heavy-duty hauling on highways and city streets. Torque capacity is ample for modern high power engines. U-300 is for off-the-highway operations, using same engine torque, where still greater load-carrying capacity is required. These are companion axles to S-200 and U-200



hypoid-helical double reduction drive single-speed axles previously introduced. Both types of final drives, double reduction single-speed and two-speed double reduction are interchangeable with each other in same axle housing. Exclusive feature is built-in easy power shift for vacuum or compressed air actuation. This mechanism enables driver to select proper axle gear ratio—"fast" or "slow"—by means of convenient control on dash. Axle housings in both axles are similar in design, made from highest grade malleable iron with inserted heat-treated alloy steel sleeves. U-300 axle has larger housing sections for its greater load-carrying capacity. Track on both axles is 72 in., with 11.00x20 tires on dual disk wheels with 123 4-in. spacing. Hubs for disk wheels are mounted on large-capacity wheel bearings spaced to obtain correct load distribution between inner and outer bearings. — **Timken-Detroit Axle Co., 100-400 Clark Ave., Detroit 32, Mich.**

**MANHOLE LIDS** — Self-locking manhole lids can be installed on present base thus eliminating necessity of digging up highway. Single-arm type is used on lids of less than 28-in. diameter and double arm on



all larger lids. They can be removed with two wedge bars and sledge, which prevents holes from being uncovered by unauthorized persons on car or truck wheels.—**Frank T. Dixon, Manufacturer, 3409 Beale Ave., Altoona, Pa.**





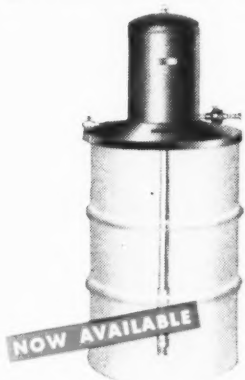
**ALEMITE COMBINATION VOLUME PUMP AND GREASE GUN LOADER**

A portable double-action volume pump that delivers grease to bearings through 5½ ft. of hose and hydraulic coupler at 3,000 lbs. pressure. It's also a clean, easy, safe loader for grease guns! Available in a single unit as illustrated with genuine Alemite push-type or lever-type hand gun and hand gun carrying bracket. Or—you can order it without the gun and bracket and convert your present Alemite guns to fit loader gun equipment.

# SPECIALLY BUILT FOR THE CONSTRUCTION INDUSTRY

## Alemite Equipment for the Correct Handling and Application of Lubricants

● Here's a "five-star" lineup of Alemite equipment developed to meet the special and rugged needs of the industry. Here's the answer to lubrication headaches and schedule wrecking shutdowns that may be plaguing you now. Through the correct handling and application of greases and oils you eliminate contamination and waste, add longer life and greater efficiency to your Construction Equipment.



**ALEMITE AIR OPERATED BARREL PUMPS**

For dispensing fibrous, heavy or light-bodied, fluid or semi-fluid lubricants. Ideally suited for service where heavy duty power lubricating equipment is required. Exclusive Dyn-a-matic primer permits the pumping of heavy lubricants even at low temperatures.



**ALEMITE TRANSFER PUMPS**

Manual or air operated pumps assure a clean and rapid method of handling all petroleum products. Transfers oil, grease and other fluids from their original containers without mess or waste. The original containers remain sealed against dirt, moisture and foreign particles.



**ALEMITE AIR OPERATED FLUID OIL PUMPS**

Designed for large volume delivery of oils and other fluids. Ideal for filling engine crankcases, housings, reservoirs, and hydraulic systems. Fits directly into the bung hole of an original 55-gallon drum. Ends contamination and waste—saves money—saves oil.



**ALEMITE HAND GUNS**

Easily develop extremely high pressure (up to 10,000 lbs.) which makes it easy to service difficult bearings. Also available in models equipped with loader valve for rapid and positive refilling with Alemite Loader Pump. Loader valves available to convert your present Alemite guns to loader operation.



### New FREE Booklet

**"Correct Lubrication in the Construction Industry"**

Handy size to keep for ready reference. Send for your copy today. Alemite, 1840 Diversey Parkway, Chicago 14, Illinois.

# ALEMITE

*Alemite ALONE Combines all 3 in Lubrication*

1. EQUIPMENT 2. PROCEDURES 3. LUBRICANTS



# Ford-Built Engines

have earned the world-wide approval that makes them

*Preferred Power* for any work  
within their capacity range

In general, you know what Ford-built engines will do. The whole world knows. But have you ever seen and studied the certified horsepower, torque and fuel consumption curves for these three famous engines?

They reveal some mighty interesting facts to any engine-wise person—designing engineer or equipment operator, sales executive or purchasing agent!

We invite you to write for your copy of the new catalog of Ford-built engines for Industrial and Marine use, if you have not already received one. It contains, besides the performance curves, all dimensional drawings, detailed specifications, standard and special Ford accessory equipment available, facts on Ford field service facilities and a list of present manufacturer-users of Ford engines.

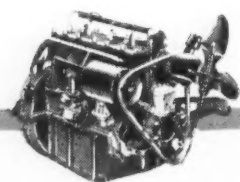
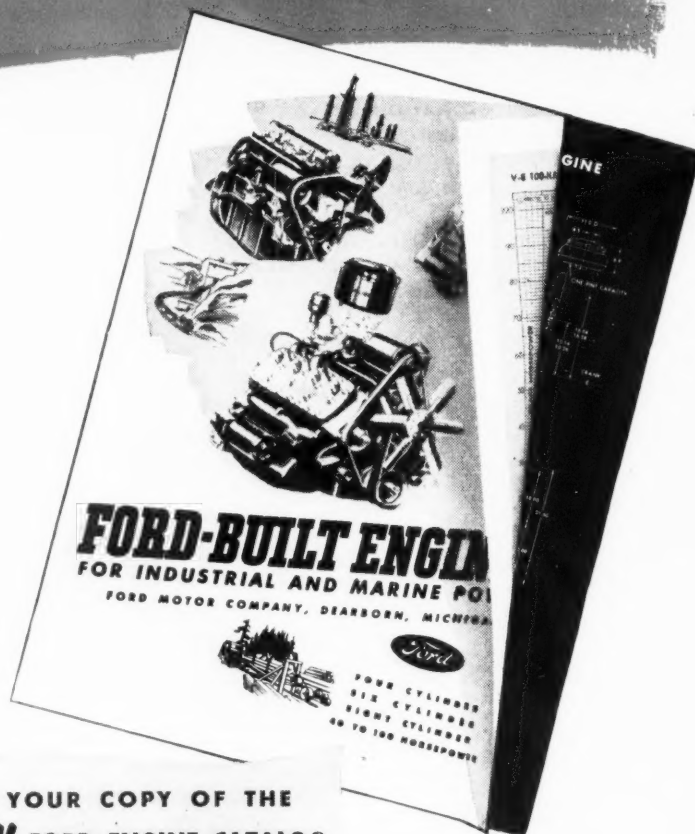
Why not exchange specifications with Ford before you make definite decisions on your engine requirements for 1947? Address—

## FORD MOTOR COMPANY

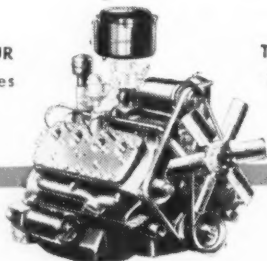
Industrial and Marine Engine  
Department, No. 60  
DEARBORN, MICHIGAN



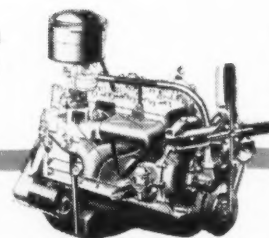
YOUR COPY OF THE  
**NEW FORD ENGINE CATALOG**  
IS READY!



THE 40-H.P. FOUR  
119.5 cubic inches  
displacement



THE 100-H.P. V-8  
239 cubic inches  
displacement

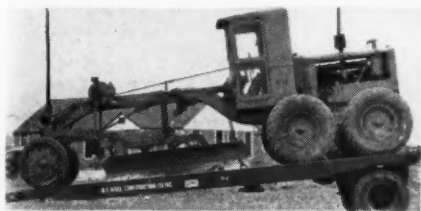


THE 90-H.P. SIX  
226 cubic inches  
displacement

FOR INDUSTRIAL AND MARINE POWER



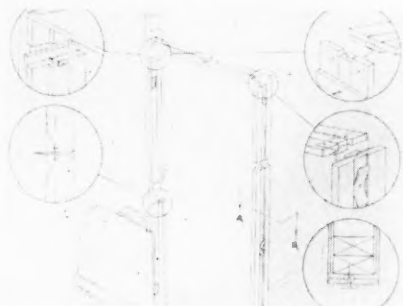
**SELF-LOADING FLOAT** — By means of power winch mounted on truck, front end of self-loading float can be lowered to ramp position. Heavy loads can be driven on to trailer under their own power or



pulled on by backing truck up to rear of trailer and using winch line. For traveling, trailer is pulled into coupling position again by winch line. One man can load and unload heavy load with self-loading float and winch.—Hobbs Mfg. Co., Fort Worth, Tex.

**ALUMINUM GASOLINE ENGINE** — Lightweight aluminum engine, 3/4-1 hp. weighs approximately 16 lb. It was designed especially for uses where light weight is important, for portable and self-propelled equipment.—Power Products Corp., Grafton, Wis.

**DOOR JAMB**—Tru-sized door jamb is said to cut installation time from 1-1½ hr. to 8-10 min. Completely built at factory, there are only three precision-milled pieces to handle on job. It eliminates work of making dados, placing and fitting blocks, squaring and plumbing with wedges, gaining for hinges, and cutting and installing stops. Packaged two to



bundle in protective paper wrapping, jambs come from factory complete with all necessary hardware and full instructions for installation. Each set includes hinge jamb, with starter block glued in place, head jamb, lock strike jamb, stops glued in place on all three jambs, five rust-proof "Shock-absorber" leaf springs, recessed head screws, washers and friction clips. Entire process of plumbing and fitting jamb is accomplished by increasing or decreasing pressure of screws against tension of leaf springs.—Wheeler Osgood Co., Tacoma, Wash.

## the NEW GALION NO. 402 MOTOR GRADER



Built small for ECONOMY, the NEW Galion No. 402 Light Weight Motor Grader is plenty rugged. It has both the power and blade pressure to give you top performance under all ordinary blading conditions.

### CHECK THESE OUTSTANDING FEATURES:

Engine over axle assures full tractive effort on drive wheels.

Sturdy single member frame gives full view of blade and scarifier action.

Hydraulic control for easy and speedy adjustment of blade and scarifier.

Centralized control—simplified operation.

Rigid circle and moldboard construction.

Ball and socket connection between draw bars and head block.

Extra-rugged front axle construction.

HERE'S A  
LIGHTWEIGHT  
THAT CAN  
REALLY  
TAKE IT.

The NEW Galion No. 402 Motor Grader is ideally suited for maintenance work in townships, counties, cities, and villages.

Catalog No. 288 gives complete information—write for your copy and name of Distributor nearest you.

THE GALION IRON WORKS & MFG. CO.

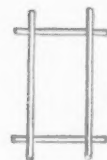
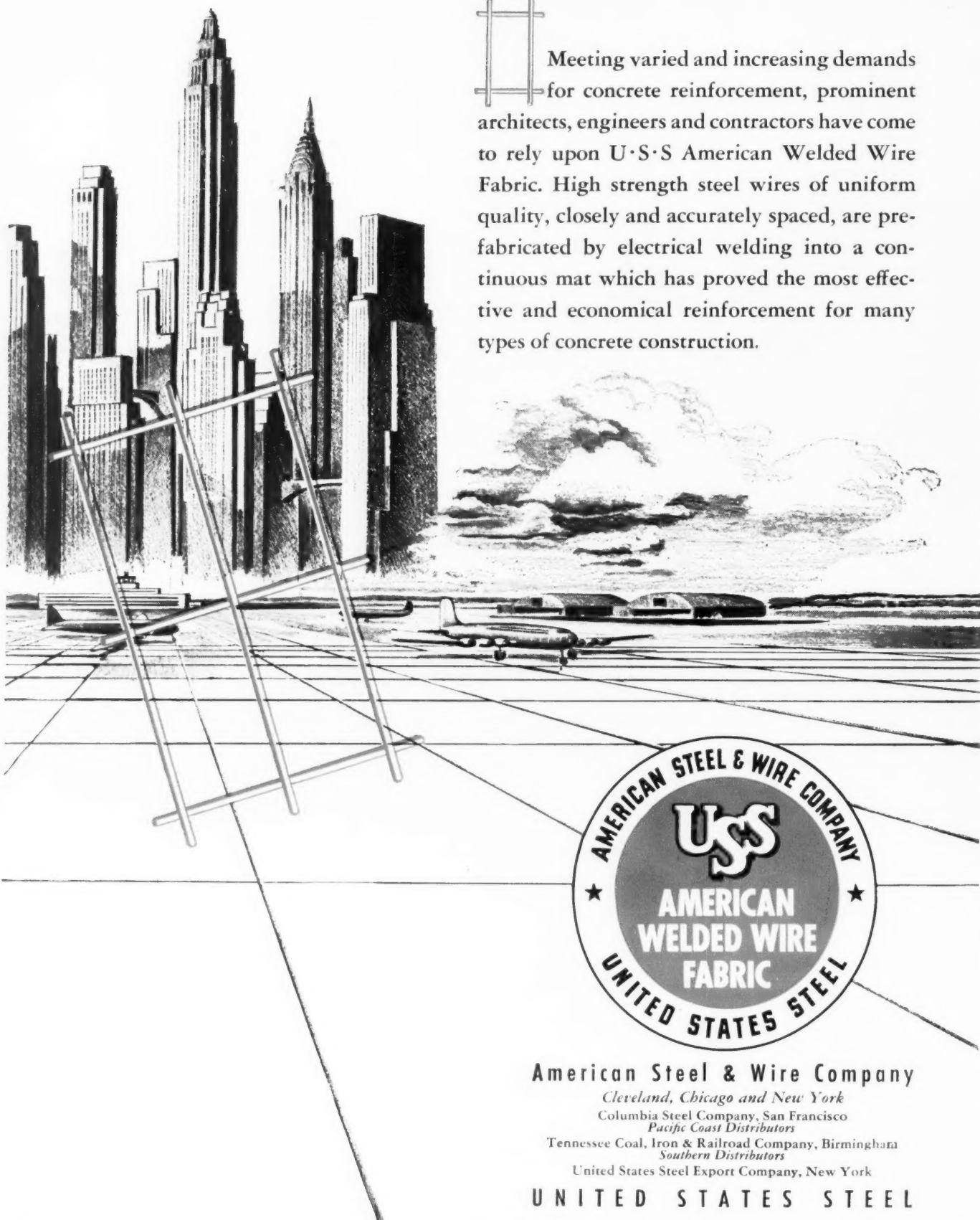
**GALION**  
IRON WORKS

General and Export  
Sales Offices

GALION, OHIO, U. S. A.

**GRADERS • ROLLERS**

# Solve your Reinforcing Problems *with the Proven Wire Fabric*



Meeting varied and increasing demands for concrete reinforcement, prominent architects, engineers and contractors have come to rely upon U.S.S. American Welded Wire Fabric. High strength steel wires of uniform quality, closely and accurately spaced, are prefabricated by electrical welding into a continuous mat which has proved the most effective and economical reinforcement for many types of concrete construction.



**American Steel & Wire Company**

*Cleveland, Chicago and New York*

*Columbia Steel Company, San Francisco*  
*Pacific Coast Distributors*

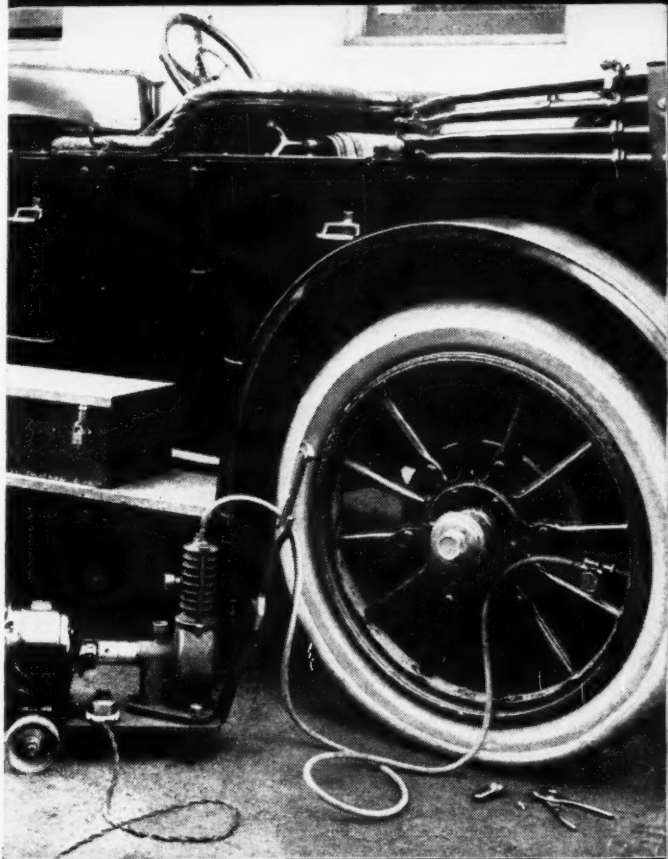
*Tennessee Coal, Iron & Railroad Company, Birmingham*  
*Southern Distributors*

*United States Steel Export Company, New York*

**UNITED STATES STEEL**



# Thermoid — For Progress in Industry



In the day of right-hand drives and high-pressure tires, compressor manufacturers already depended upon Thermoid for flexible, durable air hose.



Contrast such old time equipment with this modern two-range portable compressor unit capable of inflating tires at 80 to 100 lbs. pressure or charging pneumatic landing gear struts at 1600 to 2000 lbs. pressure. One Thermoid super high pressure air hose serves both pressure ranges.

**M**ORE and more Thermoid hose is being used as original equipment because original equipment manufacturers realize that Thermoid hose will make the difference between satisfactory and unsatisfactory performance of their equipment. Therefore, for the same reason, you should use Thermoid hose to cut your replacement hose costs. You can rely on Thermoid for any hose—air, welding, hydraulic, oil and gasoline, water, suction, creamery and many special purpose hoses to deliver satisfactory service.

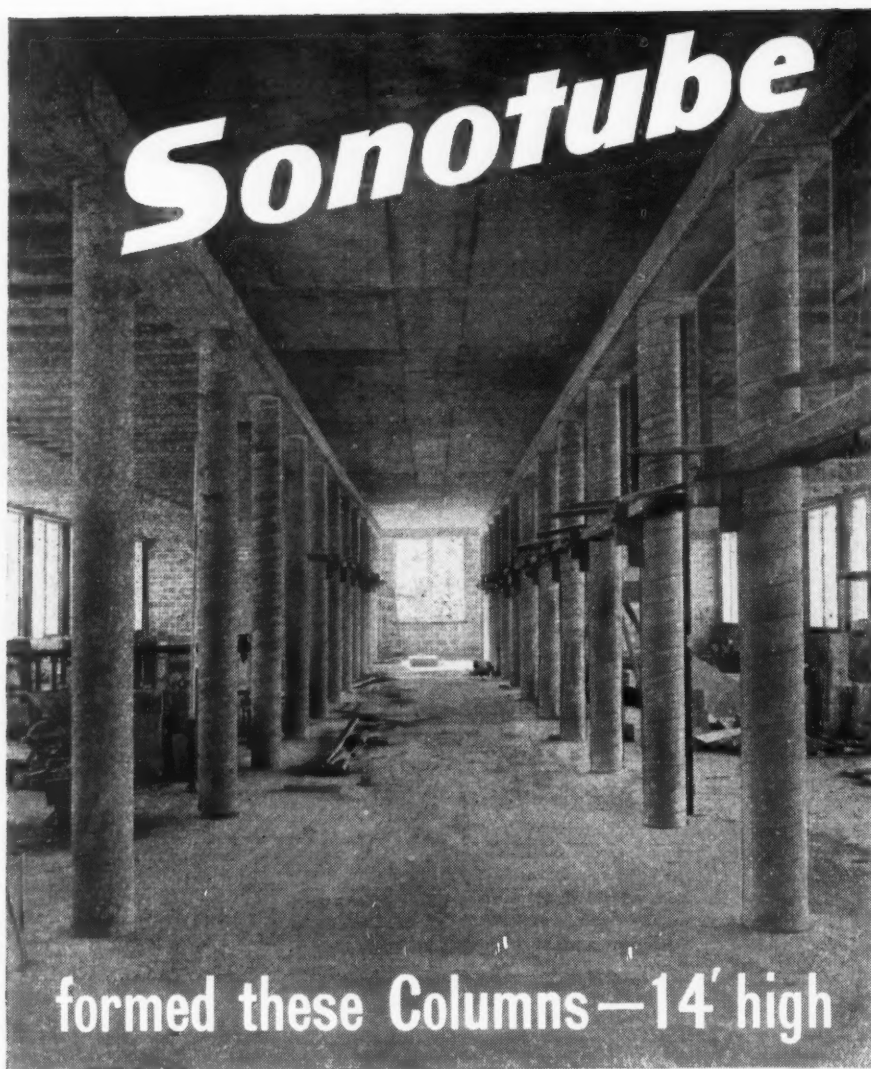
Consult your local Thermoid Jobber or direct factory representative for the right solution to your hose, belting or friction material problems. Thermoid brings you the engineering skill and industrial rubber experience of more than 60 years.

**THE THERMOID LINE INCLUDES:** Transmission Belting • F.H.P. and Multiple V-Belts and Drives • Conveyor Belting • Elevator Belting • Wrapped and Molded Hose • Sheet Packings • Industrial Brake Linings and Friction Products.

## Thermoid Rubber

**DIVISION OF THERMOID COMPANY**  
302 Whitehead Road, Trenton 6, New Jersey

*Contributor to Industrial Advancement Since 1880*



**Sonotube** is the prefabricated laminated fibre tubing, tested and approved for forming all types of pier and column forms.

Shipped to job in lengths up to 24' long  
Cut by hand-saw to pier or column heights on the job

INSIDE DIAMETER					
8"	9"	10"	11 1/4"	12"	13 1/2"
SQUARE INCHES					
50.26	64	78.54	100	113.1	144

SMALLER SIZES AVAILABLE

**IMMEDIATE DELIVERY**

*Write for Delivered Prices*

**SONOCO PRODUCTS COMPANY**

HARTSVILLE, S. C.

MYSTIC, CONN.

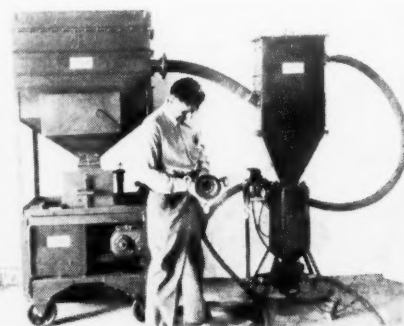
ROCKINGHAM, N. C.

GARWOOD, N. J.

LOWELL, MASS.

#### BLAST-CLEANING DEVICE —

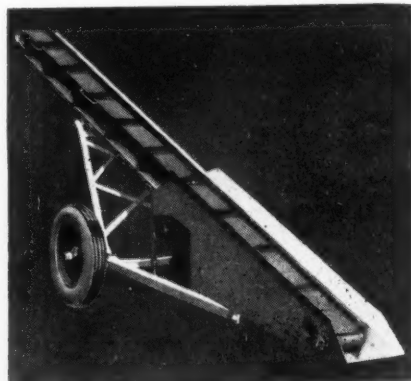
Vacu-Blaster has vacuum return system that allows cleaning or re-finishing of metal, concrete and other hard surfaces without necessity of sandblasting room. Operated in much same fashion as simple household vacuum cleaner, machine may be used for removing corrosion, paint, stains and other deposits with-



out special precautions or preparations. No masks, goggles or protective clothing is necessary. Vacuum pickup system is said to be so effective that precision machinery next to operating Vacu-Blaster need not be removed or covered. Various types of abrasives may be used, depending on specific job. Reclaiming vacuum system returns grit and refuse to reclaiming tank, where reusable grit is sent back to blasting system and dust and refuse shunted off to dust collector.—**Vacu-Blast Co., Inc., Burlingame, Calif.**

**LIFT TRUCK**—New Hyster pneumatic-tire 4,000-lb. fork-type lift truck, termed Hyster "40," uses Wisconsin air-cooled motor, trunnion steering and 7.00x12 pneumatic tires. Truck is well adapted for use over any type of indoor or outdoor road surfaces.—**Hyster Co., Portland 8, Ore.**

**LOADING CONVEYOR**—Conveyall is endless cleated belt loader, which can be operated by one man. It will handle anything from 300-mesh ma-



terial up to and including large-size cartons. Loading chute can be adjusted to variable heights.—**Bosworth Engineering Co., 6723 Denison Ave., Cleveland 2, Ohio.**



AMERICA PROGRESSES  
THROUGH CONSTRUCTION



## NEW CONSTRUCTION IS THE KEYNOTE *of Many Needed Railroad Facilities*

The empire building days of American Railroads are not over. They have really just begun.

In spite of the advancement in other forms of transportation since the pioneer days of railroad-ing—the country's 227,000 miles of "steel highways of commerce" remain the mainstay of ever increasing traffic demands.

Railroad construction running into hundreds of millions of dollars, will be

required in the next decade—for terminal facilities, repair shops, signal systems—also for reducing grades and curves necessary for faster speeds and heavier loads.

The A. G. C. Emblem identifies those construction firms with both the skill and equipment to build the railroad facilities needed to keep pace with American industrial progress.



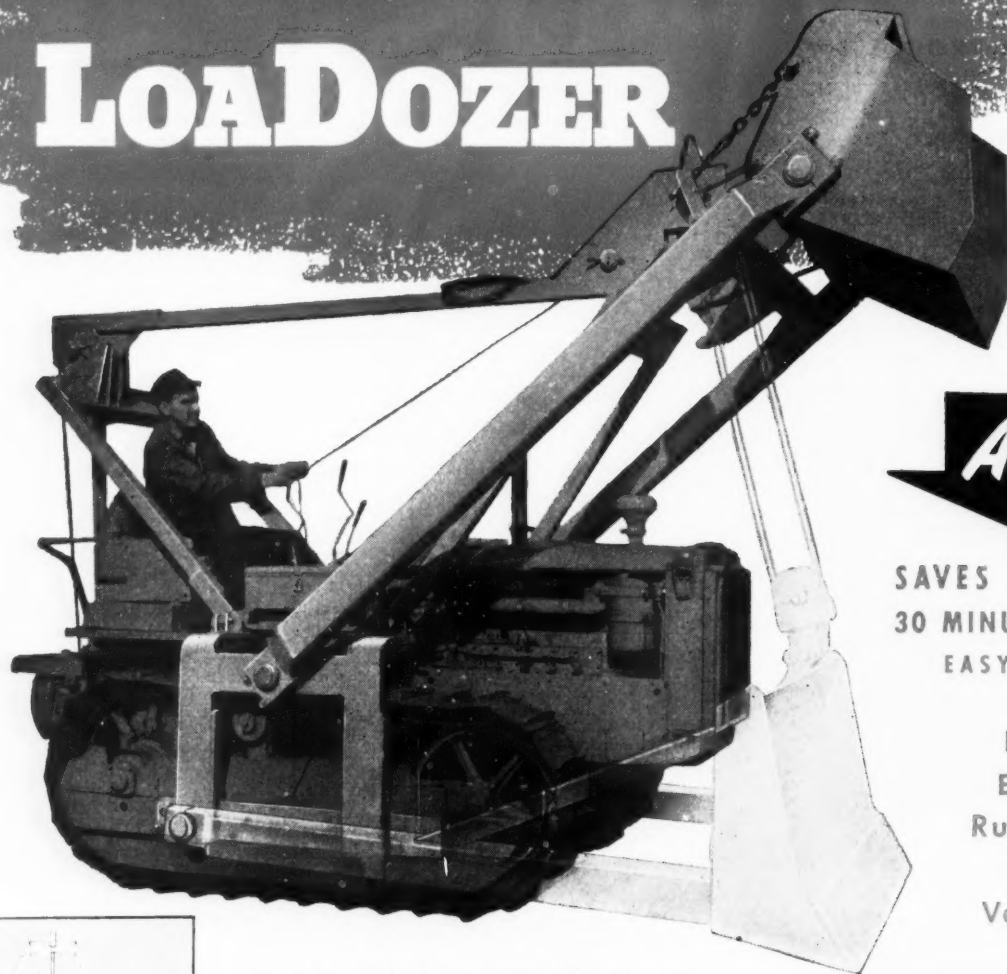
*This advertisement is No. 11 of this series*

### THE ASSOCIATED GENERAL CONTRACTORS of AMERICA, Inc.

*More Than Ninety-Eight Branches and Chapters Throughout America*  
National Headquarters—Munsey Building, Washington 4, D. C.

SKILL, INTEGRITY AND RESPONSIBILITY IN CONSTRUCTION OF BUILDINGS, HIGHWAYS, RAILROADS, AIRPORTS AND PUBLIC WORKS

# NOW-THE SOUTHWEST LOADOZER

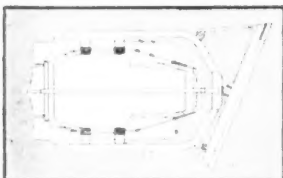
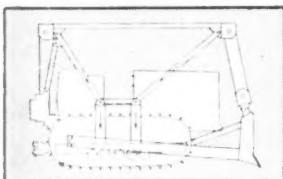
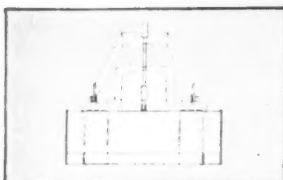


*All this*

SAVES ONE TRACTOR  
30 MINUTE CHANGE-OVER  
EASY OPERATION

Balance  
Economy  
Ruggedness  
Speed  
Versatility

ANOTHER EXAMPLE  
OF *Southwest's* LEADERSHIP



"Over Center Track Mounted"  
design gives perfect balance

All these features are "built-in" qualities of the new SOUTHWEST "LOADOZER"—Extra values that mean greater efficiency and economy in Loader and Bulldozer operations. Remember—you SAVE ONE TRACTOR—it takes only 30 MINUTES TO CHANGE OVER this combination Loader-Bulldozer unit.

- Built for all four makes of track type tractors.
- See your equipment dealer about the complete line of SOUTHWEST CONSTRUCTION EQUIPMENT.
- For complete specifications on this Loader-Bulldozer combination unit—WRITE FOR BULLETIN CM-11.

CONSTRUCTION MACHINERY DIVISION

## Southwest Welding & Manufacturing Co.

ALHAMBRA, CALIFORNIA





# IT'S **doubly** GOOD BUSINESS TO FINANCE YOUR PURCHASES OF CONSTRUCTION EQUIPMENT

*Because: C.I.T. will furnish the funds AT LOW COST. By making only a moderate initial investment you can purchase all types of construction equipment and spread payment of the balance over many months.*

**HERE'S  
WHY**

**!**

*Because: C.I.T. funds enable you to conserve working capital for payrolls, taxes, supplies. You can combine several purchases in one obligation and let the equipment help pay for itself out of earning capacity.*

CONTRACTORS: When you buy construction equipment, LET C.I.T. FINANCE THE TRANSACTION. It's DOUBLY good business to conserve your own working capital for operating purposes. Take advantage of every opportunity to effect savings in purchases of materials and supplies and be in a position to bid with confidence on additional work.

C.I.T. financing can be arranged promptly. Tell us what equipment you are buying, balance to be financed and how you prefer to pay for it. As quickly as you can obtain delivery, a C.I.T. check completes the purchase. Any of these offices will gladly handle all financing details for you.

One Park Avenue, NEW YORK

333 N. Michigan Avenue  
CHICAGO

223 Peachtree Street  
ATLANTA



660 Market Street  
SAN FRANCISCO

416 West 8th Street  
LOS ANGELES

*In Canada:* CANADIAN ACCEPTANCE CORPORATION LIMITED,  
Metropolitan Building, Toronto, Canada



*Send for free booklet  
describing C. I. T.  
financing.*

**AFFILIATED WITH COMMERCIAL INVESTMENT TRUST INCORPORATED**

**GIVE ME A LUFKIN TAPE WITH  
THE CHROME WHITE LINE  
THAT IS DURABLE**

**CHROME  
PLATED  
STEEL LINE  
WILL NOT  
CRACK, CHIP OR  
PEEL**

**JET  
BLACK  
MARKINGS ON  
CHROME WHITE  
SURFACE...  
EASY TO READ**

Extra rugged for extra tough use. Jet black markings are durable. Buy the Lufkin "Western" from your dealer. Write for free catalog. THE LUFKIN RULE CO., SAGINAW, MICH., New York City.

**LUFKIN**

THE LUFKIN RULE CO., SAGINAW, MICHIGAN, New York City

## Get a Line on an Owen!



with a  
MOUTHFUL AT  
EVERY BITE

For faster digging,  
ease of handling  
on difficult jobs  
and lowered oper-  
ating costs, "get  
a line on an Owen  
Bucket".

Owen designs and builds to meet  
your every general or specific  
requirement.

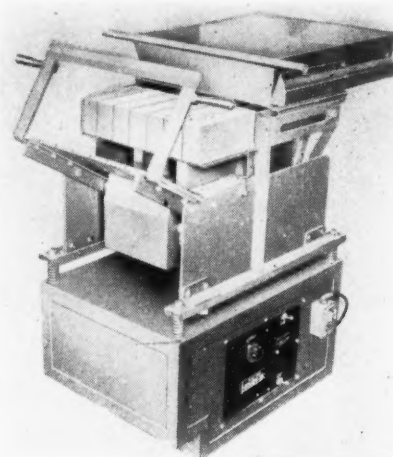
The workings of an improve-  
ment-conscious engineering  
department are evidenced  
in field performance every-  
where on dredging, ex-  
cavating and material  
handling jobs.



THE OWEN BUCKET CO.  
6020 BREAKWATER AVE., CLEVELAND, O.  
BRANCHES: New York, Philadelphia,  
Chicago, Berkeley, Cal.

Write FOR  
THE NEW CATALOG

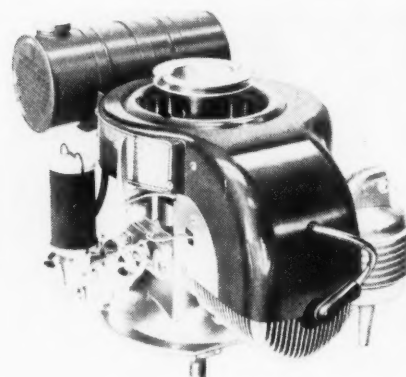
**VIBRATING MACHINE**—Model 750 with model 520 hopper, known as Vi-Brik-Crete, is high-production machine designed to make concrete products at lowest possible cost and with moderate equipment expenditure. Its operation is based on fluid characteristics of concrete when subjected to vibration of correct velocity and amplitude. Rigidity of



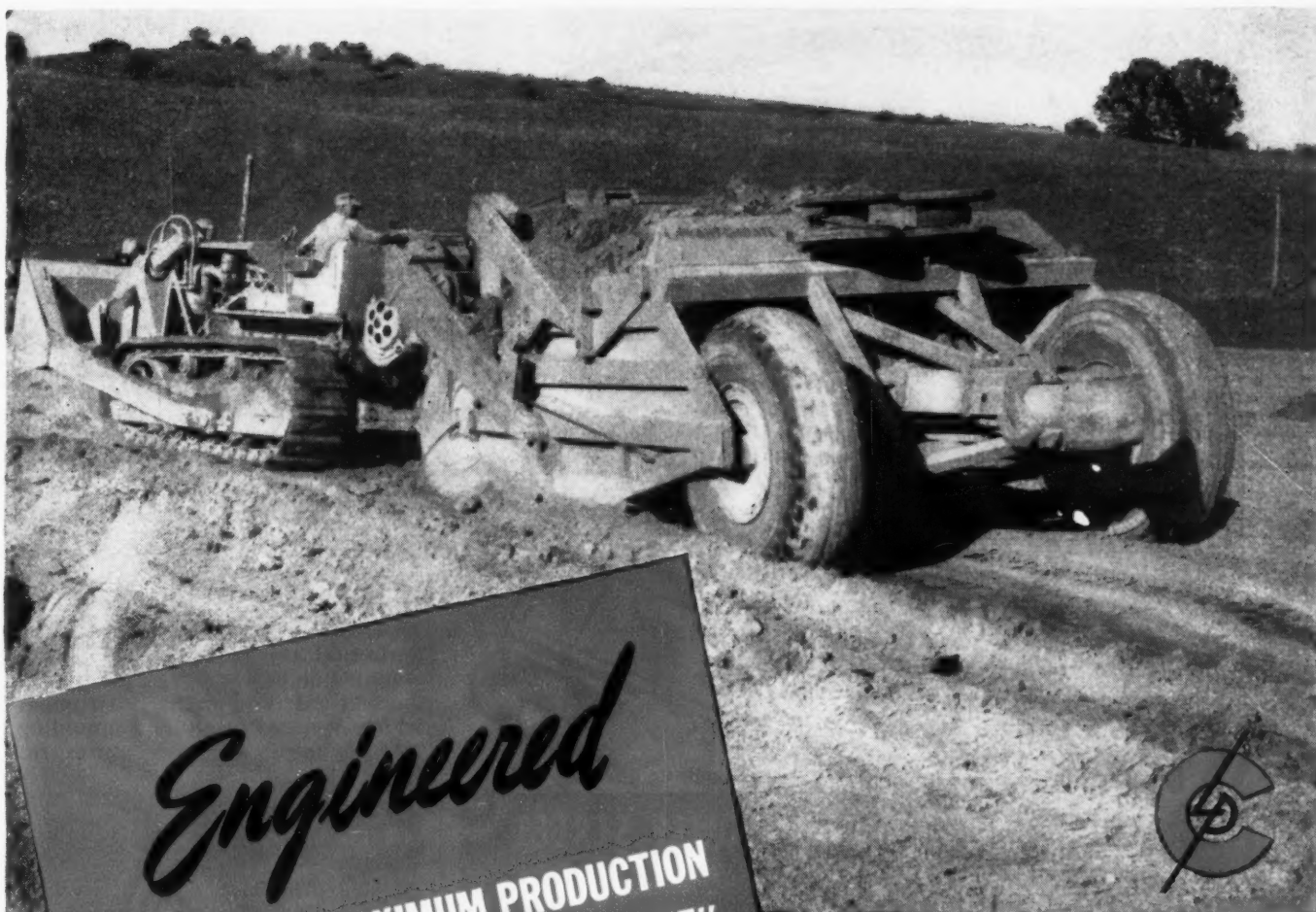
machine structure and simplicity of design together with multiple molding capacity (7 brick) lower manufacturing costs. Concrete brick made upon this machine will have compressive strengths up to 100 percent greater than those of given mix by other methods. Absorption will be reduced as much as 35 percent. Bricks are molded on low-cost pallets of wood or steel. Upon completion of vibration and molding, they are instantly removed from machine on pallets for curing. Company claims that semi-automatic Vi-Brik-Crete will produce 28 concrete brick per min.—R. S. Reed Corp., 53 Hoffman St., Three Rivers, Mich.

**GASOLINE ENGINES**—New type of lightweight industrial gasoline engine, Model 1200D, is single-cylinder, two cycle, air-cooled type that weighs only 24 lb., yet develops rated 2.5 hp. at 2500 rpm. "Reverse-flow" scavenging system permits use of flat-top, non-deflection pistons. Directional control of incoming fuel

(Continued on page 136)







*Engineered*  
TO GIVE YOU MAXIMUM PRODUCTION  
WITH A MINIMUM OF "DOWN-TIME"

1. Built to "Take it" — Sturdy welded steel box beam construction plus curved bowl bottom assure plenty of strength without excess weight.
2. Easy on Cable — Fewer sheaves plus correct reeving mean increased cable efficiency, longer cable life. Less cable is also required than with competitive models.
3. Simplified Design — Gives you interchangeable parts and simplest mechanical movements without "gadgets." All sheaves located where they won't be knocked off or collect dirt.
4. Improved Axles — Heavy duty type, adjustable vertically and supported at both ends for proper load distribution and easy removal.
5. Long Wearing Parts — Special heat treated steel. Cutting edge is hard-faced, self sharpening and reversible for extra utility. King pin assembly adjustable to eliminate "pounding."
6. Easy to Service — All working parts quickly accessible. Wheels and bearings fitted for pressure greasing — wheel bearings easily adjusted without removing wheels.

IN every competitive loading and dumping test to date, the new LaPlant-Choate "Carrimors" have consistently proved their ability to *outperform* other scrapers by a wide margin. But that's only the beginning of the *plus* values you get in these greatly improved LPC outfits. In addition, they have been made stronger, lighter in weight, easier to service on the job. Consequently, you can count on more hours of profitable production, with a minimum of "down-time" for upkeep and repairs. Better see your LaPlant-Choate distributor right away for complete facts on the 8 and 14-yard models. They're going like "hot-cakes!" LaPlant-Choate Manufacturing Co., Inc., Cedar Rapids, Iowa; Oakland, Cal.

# LaPLANT - CHOATE

*Job-Proved Equipment...*

for Lowest Possible Cost  
in Moving Earth

# MORE PROFIT ON BIG CONCRETE JOBS



**VIBER-ATION**  
*Finishes The Job Fast!*

Dependable, high speed vibration has long been a proven VIBER advantage for fast, thorough consolidation and uniform density. VIBERS give you 9,500 RPM, in concrete, for effective vibration without the "walloping of forms." The action of VIBERS is smooth, steady and resultful.

Three types of power-electric-air and gasoline. All units are interchangeable. Delivery at once. Send today for new Viber catalog.

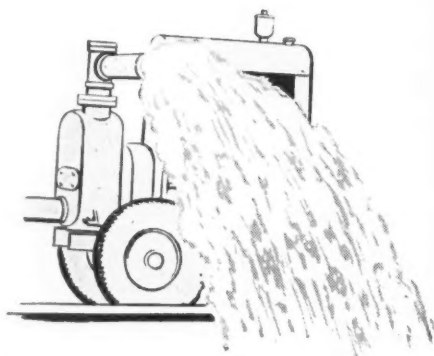
**VIBER COMPANY**

SINCE 1931

726 SO. FLOWER STREET  
BURBANK, CALIFORNIA

ORIGINATORS OF INTERNAL CONCRETE VIBRATION

## DO YOU KNOW THE CAPACITY OF THIS PUMP?



That could be a very difficult question . . . or an easy one, depending upon whether or not the contractor's pump has an AGC rating plate. If it has, then it's easy, for the AGC rating plate guarantees not only pump size but pump performance as well. It takes the guesswork out of pump buying. You know in advance exactly what your pump will do and you can plan your work schedules accordingly.

Many pumps are bought on size. But unless the pump has an AGC rating plate, the size does not assure the capacity.

Why guess? Choose the pump with the AGC rating plate and be sure!



### CONTRACTORS PUMP BUREAU

BARNES MANUFACTURING CO.  
Mansfield, Ohio

CHAIN BELT COMPANY  
Milwaukee, Wis.

JAEGER MACHINE CO.  
Columbus, Ohio

G. H. & E. MANUFACTURING CO.  
Milwaukee, Wis.

CONSTRUCTION MACHINERY CO.  
Waterloo, Iowa

MARLOW PUMPS  
Ridgewood, N. J.

Affiliated with

THE ASSOCIATED GENERAL CONTRACTORS  
OF AMERICA, INC.

STERLING MACHINERY CORP.  
Kansas City, Mo.

CARVER PUMP CO.  
Muscatine, Iowa

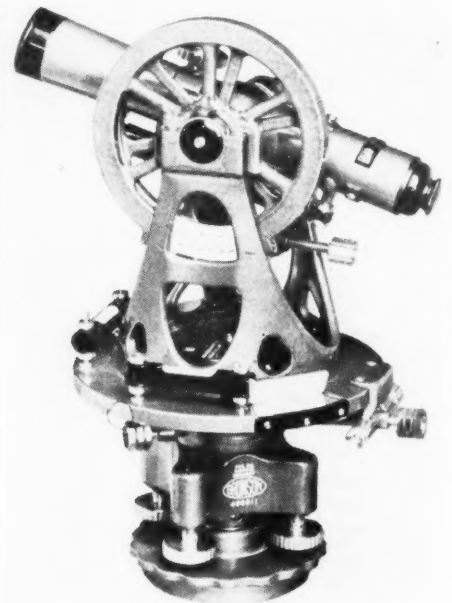
THE GORMAN-RUPP CO.  
Mansfield, Ohio

NOVO ENGINE CO.  
Lansing, Mich.

(Continued from page 134)

charge is achieved through use of guide vanes in intake ports, not through piston-top deflectors. Consequently, detonation resulting from hot spots on piston tops is greatly reduced. Angled intake ports accurately control and focus intake fuel flow. This results in improved scavenging, better fuel efficiency, better cylinder-wall lubrication, and consistently cleaner and unfouled spark plugs. All bearings are anti-friction type. Engine is air cooled and has high-tension flywheel magneto and rope starter. Bore and stroke are 2x2 in.; displacement is 6.28 cu. in. Over-all dimensions, including gas tank and spark plug, are height 14.6; length 17.8; width 14.2.—**McCulloch Motors Corp., 6101 W. Century Blvd., Los Angeles 45, Calif.**

**TRANSIT**—Vertical centers and horizontal axis of transit No. 50 are mounted on ball bearings, permitting more rigid and tight instrument which operates freely and providing free turning in all temperatures, re-

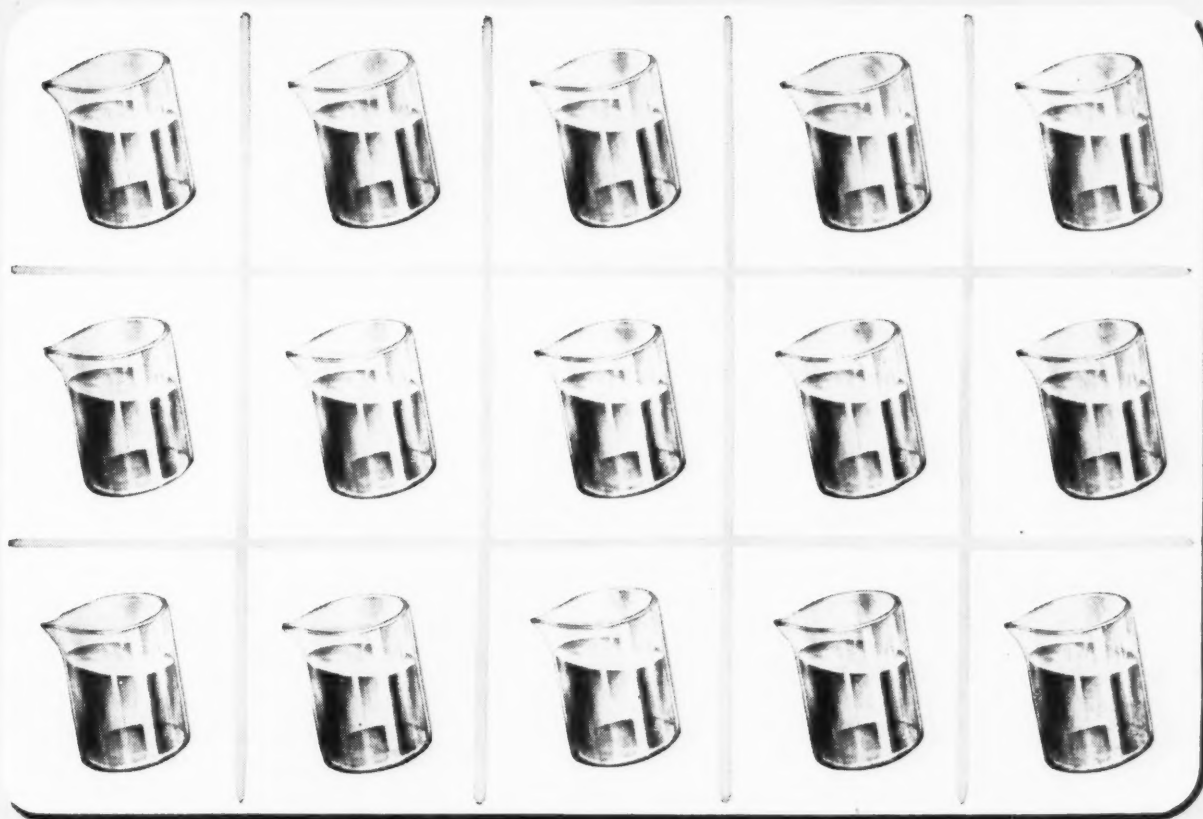


gardless of dust. Ball bearings also prevent wear. Specifications given for telescope are: 10 1/4 in. long, erecting, internal focus, coated lenses, 22X power, 1 1/4-in. effective aperture 4 seconds resolution, minimum focus 4 1/4 ft., Stadia 1:100.—**Brunson Instrument Co., 1405-07 Walnut, Kansas City, Mo.**

**SILICONE RUBBER**—New applications for G-E silicone rubber as gaskets in high temperature equipment such as diesel engines, gas turbines and air compressors have been announced. It is available in extruded shapes, molded parts, sheet stock and fabricated stocks.—**Chemical Dept., General Electric Co., Pittsfield, Mass.**



# UNIFORMITY...



**...you can count on it  
in SHELL "DIESELINE"**

Laboratory analyses of Shell "DIESELINE\*" reveal its month-after-month, year-after-year uniformity. That is why it enables Diesel operators to tune an engine's fuel injection system to that fine point which brings maximum economy . . . and hold it there!

Unvarying quality in engine-testing fuels is of utmost importance to Diesel manufacturers . . . and it is significant that many prominent builders have standardized on Shell "DIESELINE"—not just for the past year or two, but for ten, and in the case of

one of the leading engine makers, for *twelve consecutive years!*

Try this modern quality fuel in your engines for a month or two. Keep records and compare with the results you've been getting. You will be impressed by the top-notch, *consistent* performance you get from Shell "DIESELINE."

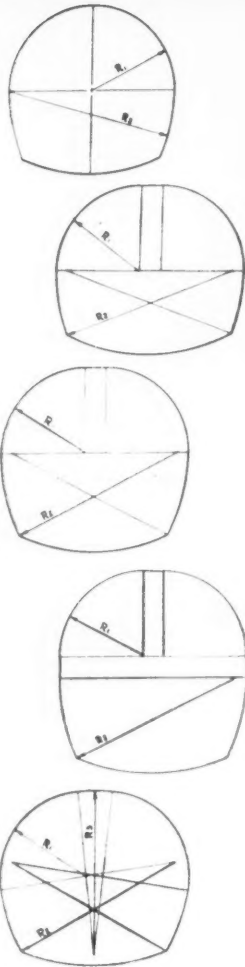
For more information about Shell "DIESELINE," write to Shell Oil Company, Incorporated, 50 West 50th St., New York 20, N. Y.; or 100 Bush St., San Francisco 6, Calif.

\*Trade Mark Reg. U. S. Patent Off.

## SHELL "DIESELINE"



# WHERE CROSS-SECTIONS CHANGE FROM STATION TO STATION



Coordinating forming methods with the concrete design may effect large savings in the construction of tunnels, conduits, walls and other concrete structures.

If the job requires 20 to 30 repetitions of similar unit pours, it is generally conceded that steel forms should be specified.

Blaw-Knox Steel Forms can be designed for easy adjustment to varying sizes of cross-sections. Advantage can still be taken of their economies and time-saving features even when the cross-sections change from station to station.

In simple diagrams and quickly read explanations the Blaw-Knox Steel Form Bulletin tells how, when, and where to specify steel forms.

**BLAW-KNOX DIVISION**  
of Blaw-Knox Company  
2086 FARMERS BANK BLDG.  
PITTSBURGH, PA.

Adjustment methods for  
varying cross-sections



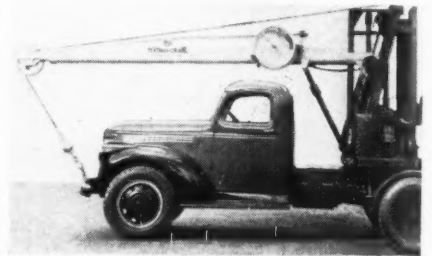
For the man who  
builds TUNNELS, SEWERS,  
WALLS and other concrete  
structures

Send for Bulletin No. 2035

## BLAW-KNOX STEEL FORMS

**PLASTIC JOINTER**—New polystyrene jointer for masonry work is similar in design to standard jointer of bent iron rod used by masons as hand tool to finish off cement or mortar joints between brick and tile. Available in varying lengths, thicknesses and color. It is seven times lighter than iron jointer, easy to grasp, warm to touch, and may be readily spotted in tool kit because of its color. Its application on cement leaves no dark discoloration. Constant use smooths and tapers rod end, making it easier for mason to maintain even, uniform surface in joint.—**Plax Corp., Hartford, Conn.**

**HYDRAULIC TRUCK CRANE**—Model H-2 two-ton hydro-crane employs full hydraulic control for every operation, entirely eliminating all gears, clutches, brakes and drums. Simple high-capacity hydraulic system operates entire unit. Standard tubular boom raises and lowers as well as telescopes from 16 to 22 ft.



under hydraulic power and 360-deg. swing is provided. Hydraulically powered outriggers can be independently extended or retracted both horizontally or vertically in 3 to 5 sec. from operator's seat. This model mounts on 1½-ton trucks or special 6x6 drive jeeps. For clamshell service, standard ¼-yd. bucket, hydraulically powered, is available, as well as hydraulic low headroom bucket for congested quarters.—**Milwaukee Hydraulics Corp., Milwaukee, Wis.**

**HARD-SURFACING ELECTRODE**—Amsco Resistwear, hard-surfacing rod, is low cost, high carbon, chrome, molybdenum, shielded arc electrode that can be deposited on any ferrous base metal. It will produce as deposited, hardness of approximately 400 to 500 brinell, depending upon degree of dilution from base metal. It is ideal for wide range of applications where it is desirable to protect ferrous parts, subjected to severe abrasion with or without impact, with overlay or more wear resistant material. Resistwear is available in coated form only for a.c. and d.c. application in 1/8, 5/32, 3/16, and ¼-in. dia. by 14 in. long.—**American Manganese Steel Division of American Brake Shoe Co., Chicago Heights, Ill.**



REGISTRATIONS SHOW IT—OPERATORS KNOW IT!

# "FORD TRUCKS LAST LONGER!"



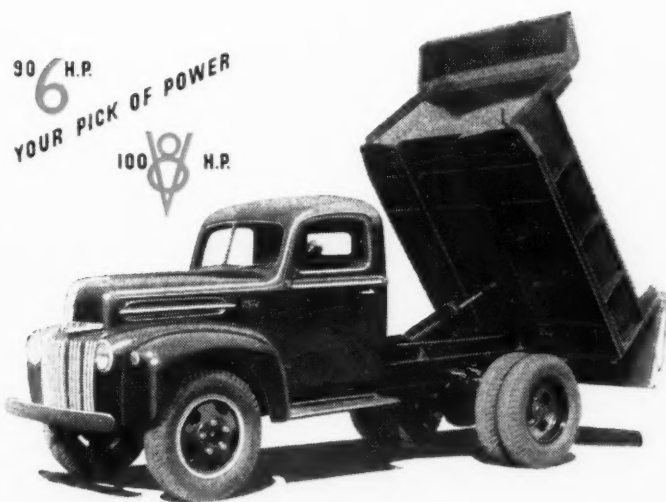
## **ONE big reason— FORD ALL-WEATHER FAST WARM-UP**


Ford trigger-fast engine starting often amazes first-time owners. It's mighty satisfying, but not nearly so important as Ford *fast warm-up*! Water does not circulate through the radiator until the engine is well warmed. This speeds the heating of water, cylinder block and oil. Hot exhaust gases are used

to heat the intake manifold, speeding vaporization of fuel and minimizing crankcase oil dilution. Both these features reduce wear on cylinder walls, pistons, rings, bearings and valve mechanism. Yes, winter is tough on any truck, but Ford Trucks are engineered to take it.



*Ford Heavy-Duty 2-ton, with dual-range rear axle and 6 x 8-foot Hydraulic Hoist Dump Body by Gar Wood Industries, Inc., Detroit.*



 **ONLY** Ford Trucks offer you **ALL** these long-life features: your choice of two great engines, the 100-H.P. V-8 or 90-H.P. Six—Flightlight aluminum alloy 4-ring oil-saving pistons—weatherproofed, Hi-Volt ignition—full pressure lubrication—axle shafts free of weight-load, even in light duty units—heavy channel section frames, doubled between springs in heavy duty models—big brakes, with non-warping, score-resistant cast drum faces—all told, *more than fifty* such examples of Ford endurance-engineering.

No wonder that Ford Trucks Last Longer! No wonder that 7 out of 11 of all Ford Trucks built since 1928 are still at work! No wonder the average age of all Ford Trucks on the job is nearly 9 years! And no wonder your Ford Dealer is calling for ever-increasing truck production schedules in Ford factories! See him now and get **YOUR** order in!

## **FORD TRUCKS**

**MORE FORD TRUCKS IN USE TODAY THAN ANY OTHER MAKE**

MEMO  
TO ALL CONSTRUCTION SUPTS.:-

*Have we been taking "BUCKETS"  
too much for granted?  
What about HAISS  
high power ratio  
7:1  
J.J.B.*

For Catalogs, Prices, Deliveries  
Write or Wire

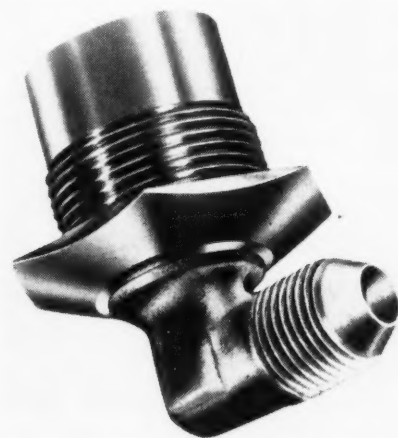
**HAISS**

**HI-POWER BUCKETS**

GEORGE HAISS MANUFACTURING CO., INC., 139th STREET & CANAL PLACE, NEW YORK 51, N.Y.



**SWIVEL PIPE COUPLING**—All-flex ball-bearing swivel pipe coupling was specifically designed to solve one of most critical problems in transmission of hydraulic power—that of conveying fluids under high pressure through pipe which swivels or rotates full 360 deg. Combination of multiple synthetic packings and metallic seals offers absolute protection against leakage at high and



low pressures, and forms basis for swivel coupling of long life and trouble-free performance. Double row of ball bearings, plus metal-backed packings, gives lowest possible resistance to rotation, permitting ease of operation at all pressures. Tests of aircraft companies and governmental agencies show torque of 2.5 in.-lb. at 1,500 psi. and 0.6 lb. at 3,000 psi. Preferably made of steel it is available in sizes from 1/8-in. to 1-in. nominal tube size with variety of threaded and elbow connections.—Snyder Sales Corp., 5225 Wilshire Blvd., Los Angeles 36, Calif.

**ASBESTOS PACKING**—V-shaped packing for steam or air rods, valve stems, boiler feed-plungers, hydraulic rams, etc., is made from woven asbestos cloth frictioned with high heat resisting compound and molded into V-shape. V-shape insures automatic sealing of high or low pressure, with minimum of surface friction on pressure stroke and no friction on return stroke.—Raybestos-Manhattan, Manheim, Pa.

**SELF-STARTING SYNCHRONOUS MOTORS**—Kurman motor requires input of only 1½ watts and produces starting and synchronous running torque of 10 in. oz. at 1 rpm. This great increase in torque has been accomplished without corresponding increase in iron and copper weight. As gears are enclosed in die-casting which supports bearings and seals in lubricant, no re-oiling is required.—Kurman Electronics Corp., 130 Clinton St., Brooklyn, N. Y.

## Both Up and Down!

Yes - - you can

*Raise Efficiency  
Pull Down Costs*

and eliminate unnecessary employee fatigue with these light-weight, portable, economical

## Coffing Hoists

DESIGNED FOR  
EFFICIENCY - SAFETY - DURABILITY

Coffing Hoists are sold by leading distributors and supply houses in all principal cities.

CONTACT YOUR DEALER OR WRITE FOR  
FORM D-4.

**Coffing Hoist Co.**

MANUFACTURER OF QUALITY PRODUCTS  
DANVILLE, ILLINOIS





When you're glad  
you have a  
**Snap-on**

**Pulling up Bearing on Swing  
and Traction Reverse Shaft...**

Snap-on's Heavy-Duty Blue-Point Boxockets give you powerful leverage to turn those stubborn, large size nuts and bolts. There is no danger of slipping for Boxocket openings completely encircle the nut . . . giving equal pressure on all six sides. You can really "bear down" and complete the job quickly and safely. Each wrench head has a locking button which engages a lock hole in the handle requiring deliberate action to unlock the combination.

Blue-Point Boxocket heads are compactly designed to reach into places where many other types of wrenches cannot possibly be used. The double hexagon broaching gives you the additional advantage of a short turning arc where obstructions restrict free swinging. Sizes available from  $1\frac{1}{16}$ " to  $3\frac{1}{8}$ " with four handles from 18" to 36".

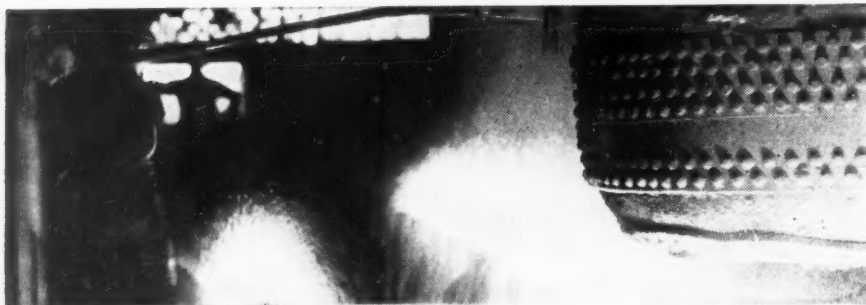
Complete information is covered in the new catalog of 4,000 Snap-on tools for production and maintenance. Send for your copy today!



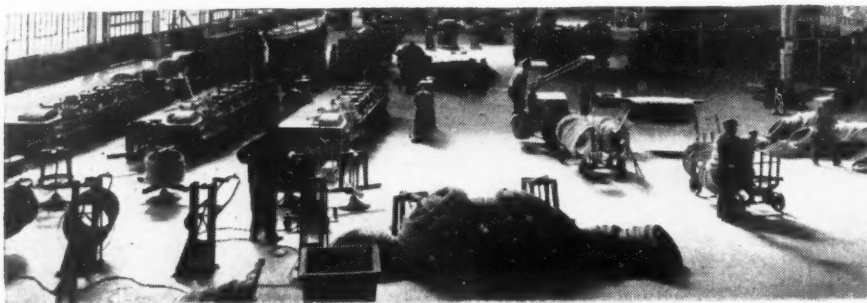
*Unit Cranes & Shovel Corp. use many Snap-on tools in the production of their complete line of rubber-tired and crawler-mounted material handling equipment.*

**SNAP-ON TOOLS CORPORATION • 8084-L 28th Avenue, Kenosha, Wisconsin**

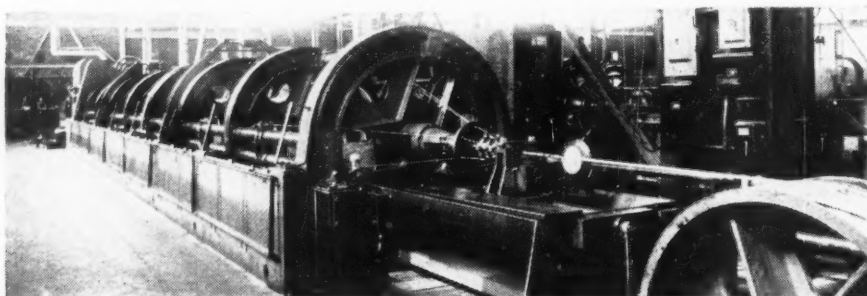
## FROM THE MAKING OF THE STEEL—



## THROUGH PROCESSING THE WIRE—



## TO FABRICATING THE WIRE ROPE—



## WICKWIRE SPENCER WIRE ROPE


is safeguarded by continued, careful control to assure the utmost in performance, safety and long life. Wickwire Spencer Wire Rope is available in all sizes and constructions—both regular lay and WISSCOLAY *Preformed*.

### HOW TO PROLONG ROPE LIFE AND LESSEN ROPE COSTS...

Thousands of wire rope users—old hands and new—have found "Know Your Ropes" of inestimable value in lengthening life of wire rope. Contains 78 "right and wrong" illustrations, 41 wire rope life savers, 20 diagrams, tables, graphs and charts. For your FREE copy, write



Wire Rope General Sales Office, Palmer, Mass.



**WICKWIRE SPENCER STEEL DIVISION**

**The Colorado Fuel and Iron Corporation**

**THE CALIFORNIA WIRE CLOTH CORPORATION**

EASTERN GENERAL SALES OFFICE  
351 Delaware Ave., Buffalo 2, N. Y.

EXECUTIVE OFFICES  
DENVER 2, COLORADO

WEST COAST OFFICES  
OAKLAND 4, CALIFORNIA

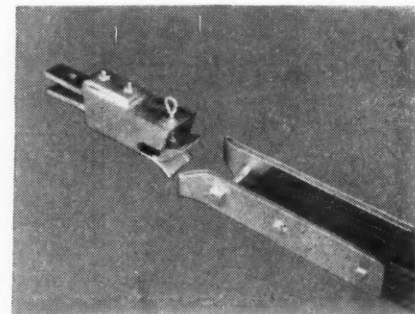
KEY CITY OFFICES  
SEE PHONE BOOK

### THRU-WALL COPPER FLASHING

—Flashing embodies six new features: Saw-tooth corrugations that form mechanical key bond in mortar, vertically and laterally; perfect drainage, so that if moisture should penetrate it will drain quickly; provision for expansion and contraction; interlocking overlap that requires no soldering; stiff counterflashing face that hugs wall tightly after base flashing has been installed; and ease with which it may be bent by sheet metal worker. It is designed to prevent leaks and seepage in building walls, streaks, stains and efflorescence, and rusting of spandrel beams. Made in sheet form in standard widths up to and including 34-in. widths and 6-ft. lengths, installation costs are kept economically low. Saw-tooth feature makes water-tight joint without use of solder.—Chase Brass & Copper Co., 236 Grand St., Waterbury 91, Conn.

### TRACTOR HITCH—Jiffy tractor

hitch enables tractor, truck or automobile operator to couple or uncouple from load or implements in spilt second without leaving his seat. Two models, of 15- and 50-ton capacities, are both of all-steel construction and will fit all conventional tongue connectors. Operator can hit within 4-in. of wagon tongue and hitch will take hold. It is not necessary for implement tongue to come straight into hitch, as it will take hold even if tongue comes in at angle.—Omaha Mfg., Inc., 3922 N. 16th St., Omaha, Neb.



struction and will fit all conventional tongue connectors. Operator can hit within 4-in. of wagon tongue and hitch will take hold. It is not necessary for implement tongue to come straight into hitch, as it will take hold even if tongue comes in at angle.—Omaha Mfg., Inc., 3922 N. 16th St., Omaha, Neb.

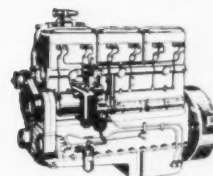
### ELECTRIC CABLE REEL—Appleton

Type "YS" Reelite, for use with traveling hoists, automatically takes up, pays out conductor cable, with no exposed current collectors, trolleys or wires. It is specially designed to team up with any traveling electric hoist within its rated capacity. Reel serves any stretch of track—straight, or with one or more bends—up to double its cable length. For curved track, and certain straight track installations, Reelite is furnished with swivel base, permitting rotation up to 335 deg. Maintenance (Continued on page 145)

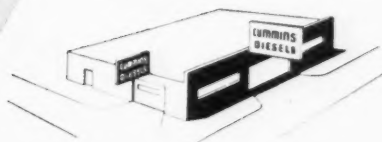


# dependable

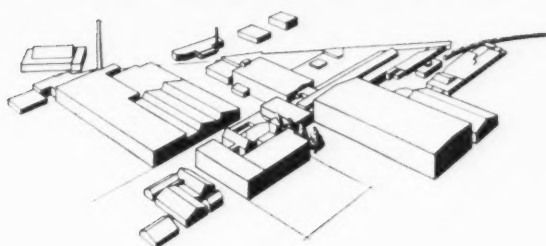
THE ENGINE



THE DEALER



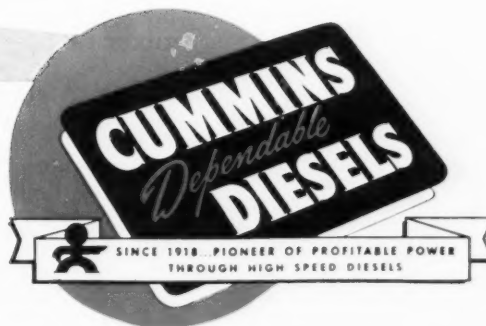
THE MANUFACTURER



**a dependable engine** . . . proven dependable and economical on jobs such as yours.

**a dependable dealer** . . . near you . . . on call 24 hours a day with adequate parts and dependable mechanics.

**a dependable manufacturer** . . . who puts quality ahead of quantity . . . who recognizes that service comes ahead of sales.



CUMMINS ENGINE COMPANY, INC., COLUMBUS, INDIANA

**You've got to be  
GOOD  
to wear it!**



Like a Phi Beta Kappa key, the AGC rating plate represents outstanding achievement. To wear it, a mixer or paver must earn the right through guaranteed capacity and performance.

You can depend on equipment wearing the AGC rating plates. There's no guesswork when you estimate a job. You know in advance what your mixer or paver will do and can plan accordingly.

Why not be sure? Insist on the AGC rating plate on every mixer or paver you buy. Taking a chance can be expensive!



## MIXER MANUFACTURERS' BUREAU

Affiliated with the Associated General Contractors of America, Inc.

### Member Names

Chain Belt Company  
Milwaukee, Wis.

Construction Machinery Co.  
Waterloo, Iowa

Koehring Company  
Milwaukee, Wis.

Ransome Machinery Co.  
Dunellen, N. J.

Kwik-Mix Company  
Port Washington, Wis.

The Foote Co., Inc.  
Nunda, N. Y.

The Jaeger Machine Co.  
Columbus, Ohio

The T. L. Smith Company  
Milwaukee, Wis.

The Knickerbocker Co.  
Jackson, Mich.



(Continued from page 142)

of reel is simple. Removal of outer covers is only dismantling required to service brushes and power spring fully, or to make solderless line connections direct to terminal block. There are oil-less bearings at all points of rotation.—Appleton Electric Co., 1701-59 Wellington Ave., Chicago 13, Ill.

**CALCULATING DEVICE**—Device for measuring radiation for steam and hot water heating systems consists of round dial with three concentric celluloid printed disks. It is said to eliminate tedious figuring usually necessary to determine the correct amount of radiation. It can be used successfully by anyone without previous technical training as its operation is rapid, not involving subtractions, divisions, complicated multiplication, nor use of formula. Dial contains sizes of mains, returns, risers, radiator sizes and capacities, round and sectional boiler net ratings, chimney flue sizes and capacities with minimum and maximum heights, hot water tank sizes and capacities, fuel oil tank sizes and capacities, hot water generator capacities and other valuable heating information.—Heat-O-Meter, 424 W. 42nd St., New York 18, N. Y.



**Steam-Detergent Cleaning  
Saves Time!**

Want a fast way to remove oil, grease and muck from equipment? Then use rapid-acting Oakite Steam-Detergent cleaning! This time- and money-saving technique does the job thoroughly... quickly removes caked-on contaminants. Facilitates inspection and repair. And, if repainting is required, steam-detergent stripping with a special Oakite material easily removes old paint... leaves surfaces in excellent condition for the new paint coat. **FREE** 24-page manual gives details. Write.

**OAKITE PRODUCTS, INC.**

24G Thames Street, New York 6, N. Y.

Technical Service Representatives Located in All  
Principal Cities of the United States and Canada

**OAKITE Specialized CLEANING**  
MATERIALS METHODS SERVICE FOR EVERY CLEANING REQUIREMENT

# SYNTRON

the "ONE-MAN"  
**GANG-OF-ALL-WORK!**

**BUSTS  
CUTS  
DIGS  
TAMPS!**

—100%—

**SELF-CONTAINED**

**Gasoline Hammer**

## PAVING BREAKERS

Not a toy—but a man-sized hammer that will do a man-sized job.

A sturdily built, hard-hitting hammer that will save you **MONEY, TIME AND LABOR**, on those close-figured jobs.

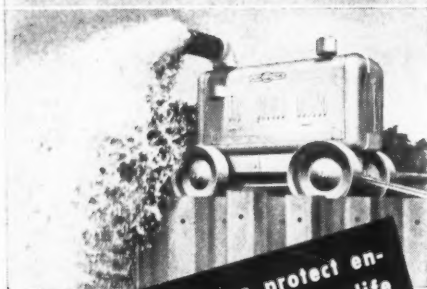
Don't hesitate to write in for free literature.

**SYNTRON COMPANY**  
500 LEXINGTON HOMER CITY, PA.

**NO**  
COMPRESSOR  
HOSE  
BATTERY BOX  
CABLE  
SPRINGS  
**That's SYNTRON**

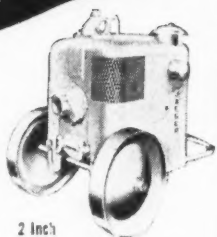
**POWER PLUS!**  
**THAT'S SYNTRON**

## JAEGER BUILDS BETTER PUMPS INSIDE and OUT



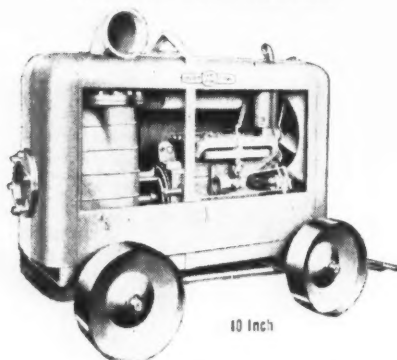
Modern enclosures protect engine efficiency...add longer life

Experienced contractors buy far more Jaeger "Sure Primes" than any other make of pump. They know that all "Sure Prime" pumps are better engineered, conservatively rated, powered with high grade engines and enclosed in modern housings that keep those engines dry, clean, quick-starting and smooth running for extra thousands of hours of low cost service.



2 Inch

### Protected Yet Accessible



10 Inch

Instant opening side panels admit to all operating controls. Enclosures are also designed to lift off or swing open for complete access when desired. One of many exclusive Jaeger advantages.



Capacities 3000 to 240,000 g.p.h.

### Only Jaeger Offers All These Features:

Inherent priming action plus "jet" priming—fastest and doubly sure . . . "Lubri-Seal," accessible for inspection . . . Self-cleaning shells . . . Replaceable liners or seal rings . . . Pumps individually tested and certified for performance.

### THE JAEGER MACHINE CO.

Main Office, Factory, Columbus, Ohio  
REGIONAL OFFICES:  
8 E. 48th St. CHICAGO 1, ILL.  
NEW YORK 17, N. Y. 226 N. La Salle St.  
235-38 Martin Bldg.  
BIRMINGHAM 1, ALA.

## New PUBLICATIONS From MANUFACTURERS

The catalogs and bulletins reviewed below will keep you posted on latest developments in construction equipment and materials available for your use



### TRUCK MIXERS

—(20-p. booklet)

Describes 1947 line of Rex moto-mixers. Closeup photographs illustrate many features, such as water nozzle and its position in drum; bolted-on, replaceable mixing blades; patented air vent in charging hopper; chain drum drive, etc. Diagrams show paths of mixing action; rotation of drum; complete water system, etc. Information is given on chute lengths and method of mounting. Included is complete set of specifications, photographs of each of three drum sizes, and two pages of job pictures.—Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.

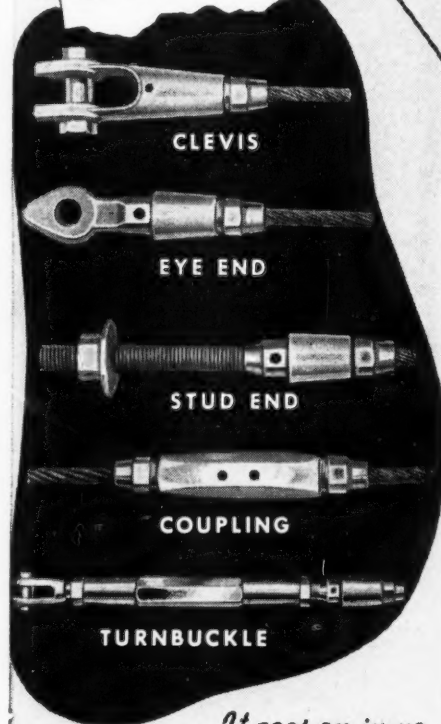
### DUPLEX PLANT — (8-p. booklet)

Explains in detail how 46-VE duplex crushing and screening plant with diesel and electric drives is constructed, how simplified drives are arranged, and gives complete specifications. Special emphasis is given to features which make it possible to secure unusual portability and maneuverability of high capacity plant. Reduction in weight and savings in mechanical maintenance costs accomplished by electric drive are pointed out.—Pioneer Engineering Works, 1515 Central Ave., Minneapolis 13, Minn.

### LAMPS—(76-p. technical treatise)

Contains cream of technical data gathered by C. E. Weitz from wide range of bulletins and articles published by engineering division of G. E. lamp department. It features latest lamp developments and their practical applications to host of fields in commerce, industry and home. Its contents page lists more than 40 lamp topics, including lamp economics, temperatures, voltages, auxiliary equipments, germicidal, infrared, sunlamps and glow lamps. Copiously illustrated with photos, diagrams and charts, it is priced at 40 cents.—General Electric Lamp Department, Nela Park, Cleveland, Ohio.

## Stronger THAN THE WIRE ROPE ITSELF... this Electroline -FIEGE CONNECTOR



It goes on in no time—and hangs on for all time: this simple, husky device. Simply put the cable end through the sleeve, spread the strands, insert and drive in the plug, apply the socket and set in tight. Through the ingenious inspection hole you can see by the twisted strands that the joint is perfect.

These better connectors dampen vibration, prolong wire rope life. These advantages, plus low cost installation and life-time service, have made them the standby in the shipbuilding and construction industries, and wherever wire rope and cables are used. Available through your mill supply distributor.



MANUFACTURED SOLELY BY  
**Electroline Company**  
4121 SOUTH LA SALLE STREET  
CHICAGO 9, ILLINOIS



SERVING THE CONSTRUCTION INDUSTRY SINCE 1872



You can expect—and you'll get—a full day's work, every day, from **OSGOOD** equipment, for dependable performance under any conditions is built into every **OSGOOD** machine. Since 1872, the **OSGOOD** name has been closely allied with the finest construction equipment. From this nearly three quarters of a century of manufacturing experience come the design and engineering know-how that mean more profits for you—when

you're using **OSGOOD** today!

For today, **OSGOOD** offers a complete line of shovels, cranes, draglines, backhoes, clamshells and pile drivers . . . a model and size to fit every need. Whatever your requirements, there's an **OSGOOD** machine that will do your work faster and better . . . at lower cost. Write today, outlining your particular requirements . . . complete information will be sent without obligation to you.

- POWER SHOVELS • DRAGLINES • CRANES • BACKHOES •
- CLAMSHELLS and PILE DRIVERS • 3/8 to 2 1/2 cu. yds. capacity •

THE  
**GENERAL**  
EXCAVATOR COMPANY  
CRANES, DRAGLINES  
AND SHOVELS  
DIESEL, GAS, ELECTRIC

Associated with The General Excavator Company

**OSGOOD**

THE OSGOOD COMPANY • MARION, OHIO

**OSGOOD**  
SHOVELS, DRAGLINES  
CRANES  
CRAWLER & WHEEL MOUNTS  
DIESEL, OIL, GAS, ELECTRIC

# McKiernan-Terry

## DOUBLE-ACTING PILE HAMMERS used 'round the world



MK-1008

Long before the late war these pioneer double-acting pile hammers were the choice for major construction projects as far away as the Orient, Australia, India, as well as Europe and the Americas. Throughout the war, these hammers gave needed aid to Army and Navy construction and reconstruction forces in every theatre of operation . . . Today, the greatly expanded facilities of two large, modern McKiernan-Terry manufacturing plants offer contractors prompt deliveries on McKiernan-Terry Double-Acting Pile Hammers in ten standard sizes.



**SEND FOR BULLETIN NO. 55**  
Gives full information, specifications, diagrams, etc., on McKiernan-Terry Double-Acting Pile Hammers and Extractors.

**McKIERNAN-TERRY CORPORATION**

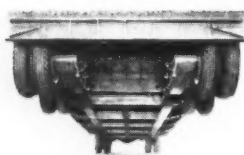
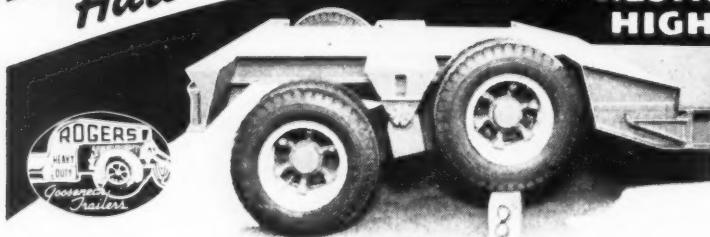
Manufacturing Engineers

14 Park Row

New York 7, N. Y.

## ROGERS WALKING BEAM TRAILERS

*Haul HEAVY PROFITABLE LOADS*  
*OVER RESTRICTED HIGHWAYS*



Worm's eye view showing the "walking beams", widely spaced bearings and heavy frame construction.

Adequate "rubber" capacity. Wheels that oscillate to distribute the load over all tires regardless of road irregularities. Both are essential to practical hauling of heavy machinery and equipment.

Both are accomplished in this large capacity Rogers Trailer, yet it is only 8 feet wide to conform to the requirements of some states.

Entirely satisfactory performance is accomplished by means of a "walking beam" such as you have seen on steam boats. If you use heavy duty trailers, write for the Rogers Catalog which illustrates and describes a type and size for every purpose.

**ROGERS BROTHERS CORPORATION**

220 ORCHARD ST. • ALBION, PA.

# ROGERS TRAILERS

EXPERIENCE *builds 'em* • PERFORMANCE *sells 'em*

## THERMOMETERS AND PRESSURE GAUGES — (20-p. catalog)

Describes vapor, gas and mercury-actuated thermometers and pressure gauges. Large cut-away illustration features design improvements found in Brown products, with each part clearly labelled for easy identification. Bulbs, charts and interchangeable cases are fully treated, as are operating features of instruments.—**Brown Instrument Co., Wayne & Roberts Aves., Philadelphia 44, Pa.**



## PRESSURE BLOWERS — (12-p. folder)

Describes new series of high efficiency, direct drive, corrosion resistant, axial flow pressure blowers. They are produced in

two basic groups, with 16-in. and 24-in. hubs.—**The Moore Co., 544 Westport Rd., Kansas City 2, Mo.**

## HYDRAULIC CONTROL HOSE— (Catalog leaflet)

Discusses construction features of product and method of manufacturing. Page is devoted to correct method for figuring correct length of hose for various bending radii of various sizes of hydraulic control hose.—**The B. F. Goodrich Co., Akron, Ohio.**

## HIGH-STRENGTH STEEL—(68-p. booklet)

Contains complete data on properties, fabrication, and application of U. S. Cor-Ten. First section discusses various properties of this high tensile strength steel. In second section full data are given regarding fabrication by standard practices, including five pages on welding. Test data, lists of equipment and users, together with photographs and charts, are liberally used.—**United States Steel Corp. Subsidiaries, 429 Fourth Ave., Pittsburgh 19, Pa.**

## SHRINKAGE OF CONCRETE AND MORTAR—(34-p. booklet)

Discusses action of Embecco in concrete and mortars. Explaining principle of specially prepared metallic aggregate in controlling shrinkage, it describes use of Embecco for machinery and heavy equipment grouting, cement gun work, and patching and repairing concrete. Charts, graphs and useful technical data are included.—**The Master Builders Co., 7016 Euclid Ave., Cleveland 3, Ohio.**





## Gulf Products

help contractor make rapid progress  
on tough road job—

“**E**VERY piece of equipment is delivering top-notch performance with Gulf lubricants and fuels in service—one of the big reasons why we’re making rapid progress on this tough highway reconstruction job,” says the G. J. Packey Company.\* “Gulf products help us get extra yardage and lower operating costs.”

The progress of any dirt-moving job depends to a large extent on the efficiency of the equipment that does the work. That is why so many leading

contractors use Gulf quality lubricants and fuels as basic profit insurance. They know from experience that equipment performs better, stays on the job longer, and operates at lower expense for maintenance.

Arrange to use Gulf quality lubricants and fuels on your next job. They are available to you through 1200 warehouses located in 30 states from Maine to New Mexico. Write, wire, or phone your nearest Gulf office today.

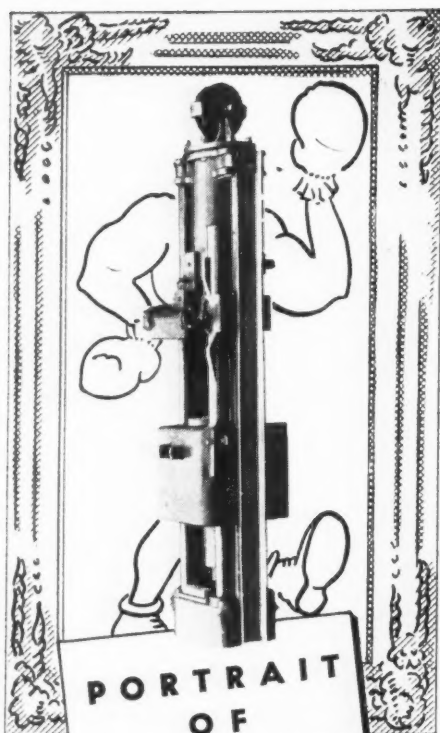
\*  
G. J. Packey Company, Mt. Vernon, New York, was the successful bidder to replace the old road between Mt. Pocono and Tobyhanna, Pennsylvania, which has been known for many years as the Lackawanna Trail. The project involves clearing 400 acres of timber, moving 140,000 cu. yds. of earth, two new bridges, and 84,000 sq. yds. of concrete.



**Gulf Oil Corporation • Gulf Refining Company**

Division Sales Offices:

Boston • New York • Philadelphia • Pittsburgh • Atlanta  
New Orleans • Houston • Louisville • Toledo



## **PORTRAIT OF POWER**

### **WARRINGTON- VULCAN Single-Acting Steam PILE HAMMERS**

A portrait of power . . . a picture of rugged strength and simple design. It's the Warrington-Vulcan Single-Acting Steam Pile Hammer that puts down piles with speed and savings.

Rapid, regular and continuous action rams them home. Operating at a medium steam pressure, the Warrington-Vulcan delivers a moderate frequency of low velocity blows from a relatively heavy ram. All working parts are exposed for easy accessibility. Its rugged simplicity saves you maintenance and mechanical costs; its unvarying efficiency saves you operating expense. It drives any kind of pile . . . and it's been *proved in action* since 1887.

We'll gladly furnish full details. Write today.

**VULCAN IRON WORKS**  
Since 1852

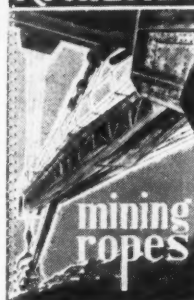
331 North Bell Avenue



Chicago 12

---Illinois

## **ROCHESTER**

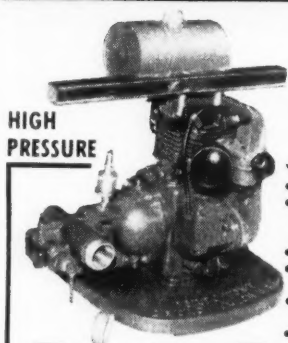


principles governing their use. Several valuable tables and illustrations are included. — **Rochester Ropes, Culpeper, Va.**

**POWER SHOVELS**—(36-p. booklet) Describes, illustrates and gives specifications for Model 70 units, including power shovels, trench hoes, draglines and cranes. Chart of material weights is feature.—**Buckeye Traction Ditcher Co., Findlay, Ohio.**

**FLEXIBLE SHAFT MACHINES**—(16-p., two-color folder) Describes new additions to and present models of flexible shaft machines, high-speed grinders, tools and accessories. —**Wyzenbeek & Staff, Inc., 838 W. Hubbard St., Chicago 22, Ill.**

## **HIGH PRESSURE UTILITY PUMP**



**HIGH  
PRESSURE**

*Immediate  
Delivery*

**Engineered  
EFFICIENCY**

- FOR DAIRY BARNS
- JETTING BY BRIDGE & DOCK CONTRACTORS
- PLACER MINING
- TESTING WATER MAINS
- STAKE JETTING BY FISHERMEN
- OIL WELL SURVEY

## **Porto-Pump**

Small towns and resorts, financially unable to own and maintain high priced fire pumper, can now afford fire protection. Porto-Pump can be mounted in rear of light truck, motor scooter or trailer.

Independently powered, self sufficient and engineered for continuous use at consistent high efficiency, the rubber impellers deliver over 40 U. S. gallons per minute at 120 lb. pressure by actual flow-meter test.

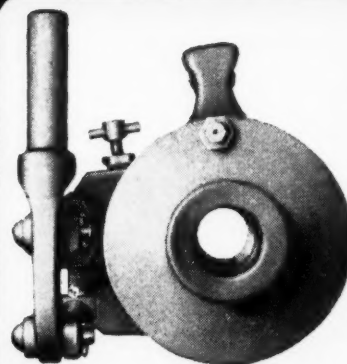
Where hydrants are not available, use water from ditches, lake or cistern. Pressure and volume losses due to abrasive action of dirty water are avoided by Porto-Pump's rubber impellers.

SOME DISTRIBUTOR TERRITORIES AVAILABLE

**PORTO-PUMP, INCORPORATED**

227 IRON STREET, DETROIT 7, MICH.

*It's All in  
the **HOLE!**  
—of the  
Simplex Jenny*



Simplex Jenny: capacities 30, 60, 80 and 100-tons. Center hole 1 1/2" to 3 1/4" diameter.

Looking down through the Center Hole of the Simplex Jenny Center Hole Hydraulic Puller, you can readily see why this compact unit enables one man to pull, push or lift as much as many men working with old methods. Shaft slipped through center hole is readily clamped, bolted or lugs welded on to provide back up for ram—reducing the time required for numerous tough, heavy jobs from hours to minutes. Ask for Bulletin 44-J.

Templeton, Kenly & Co.  
Chicago 44, Ill.

**SIMPLEX**  
WORLD'S MOST  
COMPLETE  
LINE OF  
**JACKS**  
LEVER  
SCREW  
HYDRAULIC





Rickenbacker Causeway, Miami, Fla.

## For the Tough Jobs Depend on Long-Column MONOTUBE FOUNDATION PILES

**T**APERED, steel long-column Monotube Foundation Piles are ideal for off-shore jobs requiring strong foundations.

Monotubes are cold-rolled and fluted for additional strength, resist bending forces equally well from all directions. Their

light weight, easy extendibility and tapered design make quick work of a big job. And their tubular construction permits thorough, easy inspection after driving.



For complete information, write The Union Metal Manufacturing Company, Canton 5, Ohio.

# UNION METAL

*Monotube Tapered Piles*

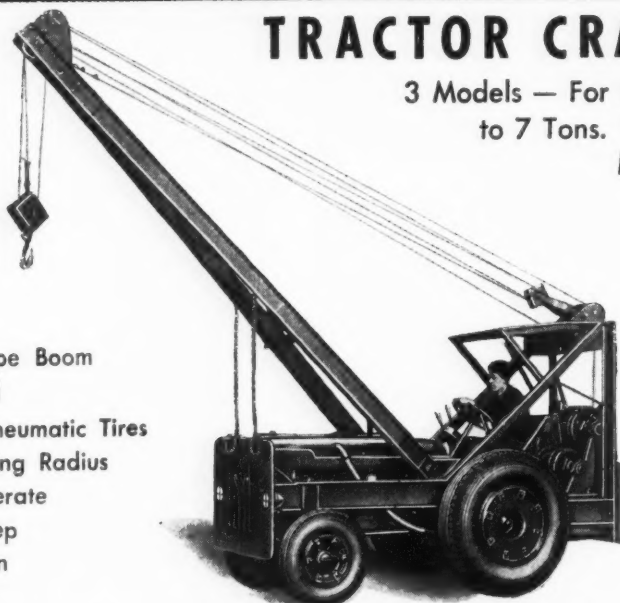
# MERCER

"The Name that Carries Weight"

## MATERIAL HANDLING EQUIPMENT

### TRACTOR CRANES

3 Models — For Loads Up  
to 7 Tons. Write for  
literature.



Special Type Boom  
Designed  
Solid or Pneumatic Tires  
Short Turning Radius  
Easy to Operate  
Low Up-Keep  
Clear Vision  
Live Boom

MERCER ENGINEERING WORKS, INC.

Plant: Clifton, N. J.

SALES REPRESENTATIVE

MERCER-ROBINSON COMPANY, INC.  
30 CHURCH ST., NEW YORK 7, N. Y.

**CONTROL VALVES** — (36-p. bulletin) Features color page showing various identifying enamel finishes offered on Stabilflo Valves, corresponding with color code of American Standards Association; plates and tables of specifications for control valves, needle type valves, poppet valves and butterfly valves; separate sections on Vernier Valveactor for high-accuracy positioning of valve plungers, and on air switches and sub-panels for remote valve control. Appendix contains information on computing valve sizes, with tables and formulae for determining size of correct valve for contemplated installation. Air filter sets, ventilating dampers, and other pertinent accessory equipment are illustrated and described.—**Foxboro Co., Foxboro, Mass.**

### BOB-CAT

ELECTRIC HOISTS



**ELECTRIC CABLE HOIST** —(8-p., three-color bulletin) Is profusely illustrated with cross sections of Bob-cat hoists and other engineers' parts, tables, etc.—**Lisbon Hoist & Crane Co., Lisbon, Ohio.**

No. 69 1/4" Drill  
**\$11.80**

No. 89 1/2" Drill  
**\$29.95**

**EACH** month, more SpeedWay Drills come off the production line; are being shipped each day. But, frankly, though we are beginning to cut into our mountainous pile of back orders, there's a deal of waiting still for a lot of people who are ordering SpeedWay Tools today. However, because they are worth waiting for, we suggest that you place your order now with your local SpeedWay dealer for earliest possible delivery.

**SPEEDWAY MFG. CO.**  
1853 S. 52nd Ave. Chicago 50, Ill.

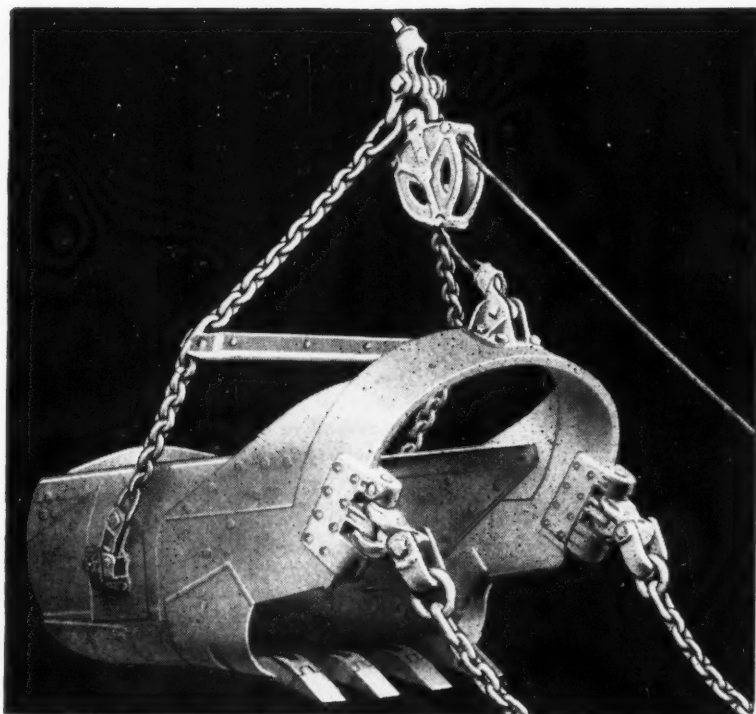
No. 89 equipped with Snap-Release Chuck  
No. 89-J with Jacob chuck (as illustrated) \$5.00 extra

**BUILDING PRODUCTS DIRECTORY**—(28 pp.) Contains classified history of products and services of Producers' Council members; gives locations of members' sales representatives who are equipped to furnish technical and product information; and lists national offices and representatives of members. Directories are being distributed to architectural and engineering offices, federal, state and local government construction offices, and selected general contractors, specialized contractors, home builders, and building management firms.—**The Producers' Council, Inc., 815 15th St., N.W., Washington 5, D. C.**

**PROTECTIVE COATINGS**—(Visual index) Shows industrial applications for different types of "Bitumastic" protective coatings. Center page contains large composite drawing of factory, showing where Bitumastic and Bituplastic products can be used to advantage in prevention of corrosion. Guide provides handy checking arrangement whereby plant managers can readily determine correct coating to protect buildings and plant equipment.—**Wailes Dove-Hermiston Corp., Westfield, N. J.**

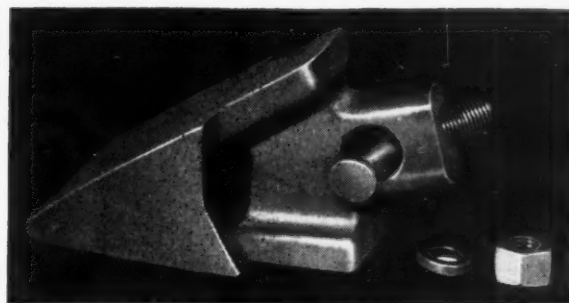


*Another first...*



*for*  
**PAGE**  
*Automatic*  
**DRAGLINE BUCKETS**

*New*  
*and exclusive...*



Page Manganese reversible Tooth Points will stay absolutely *tight* on the lip. The new hook bolt fastening prevents wearing and tearing of the bolt and also allows quick and easy detachment of the Tooth Points. Page *Automatic* Buckets are now equipped with these new Tooth Points to insure the best digging in any type of material—a great advancement for the *Automatic*—a great saving for you!

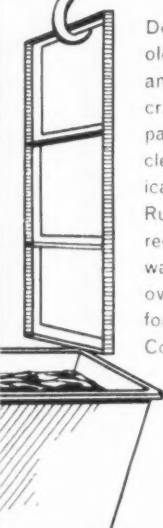
**PAGE REVERSIBLE  
CENTER SHANK  
TOOTH POINTS**  
*(secured by a hook bolt)*



**PAGE** **ENGINEERING COMPANY**  
**CHICAGO 38, ILLINOIS**

# New CONCRETE REMOVER CLEANS FORMS

*Chemically*



Don't waste time and labor in old-fashioned hand scraping and chipping. Concrete encrusted forms, block machines, pallets and tools can now be cleaned easily, quickly, chemically. Simply immerse in Nox-Rust Concrete Remover per directions, then rinse in clear water. Clean forms and tools overnight—have them ready for use next morning. Nox-rust Concrete Remover works like magic; (1) loosens and dissolves cement, (2) does not harm wood or steel, (3) is economical and labor saving. Send coupon for full details.

**NOX-RUST**  
CHEMICAL CORPORATION

NOX-RUST CHEMICAL CORP. Please send me  
2493 South Halsted Street full information  
Chicago 8, Illinois on your new Con-  
crete Remover.

NAME \_\_\_\_\_  
FIRM \_\_\_\_\_  
ADDRESS \_\_\_\_\_



**ENGINES** — (12-p. catalog) Features Ford-built engines for industrial and marine use. Specifications and dimensions are given. It fully describes 100-hp. V8, 90-hp. 6-cyl-inder, and 40-hp. 4-cylinder engines. Power curves show recommended speed range for continuous operations.—**Industrial & Marine Engine Division, Ford Motor Co., 3000 Schaefer Rd., Dearborn, Mich.**

**TWO-STAGE PUMPS**—(8-p. bulletin) Describes company's high efficiency, ball bearing type DMD two-stage pumps, which are suitable in all clear water services where pressures of 100-170 lb. are required. Selection tables are included.—**Economy Pumps, Inc., Hamilton, Ohio.**

**INDUSTRIAL PACKING** — (Illustrated folder) Describes various types of metal packings and outlines advantages of packings made to fit standard stuffing boxes.—**France Packing Co., 6512 State Road, Philadelphia 35, Pa.**

## Digs 600 Holes a Day

For Foundation Footings . . . Highway and Industrial Fencing . . . Rural Telephone and Light Poles . . . Airports . . . Cemeteries . . . Holes for Dynamiting, etc.



## "SPEEDIGGER"

Quickly mounts on all row crop tractors; also available for all crawler-type tractors. Drills at any angle, up to 54° deep. Standard auger sizes from 4" to 12".

Operator stands on platform, behind protective handrail . . . out of dirt . . . away from moving parts. Built extra strong for toughest digging operations. Drills through hard dirt, frosted ground, roots and gravelly soils. Thousands in use by state highway departments, utility companies, U. S. Govt. engineers, etc. Thoroughly proved. Guaranteed.

WRITE for details and prices . . . available now . . .

**R. J. PIPER MANUFACTURING CO.**  
PRINCETON, ILLINOIS  
New York Office: 100 E. 42nd St.

At last! an all-inclusive treatment

## How to plan, build and manage the modern AIRPORT

Presents the facts and data on each of the component parts of an airport



Covers each detail of:

- site selection
- runway layout
- field and laboratory tests
- grading, drainage and pavement design procedures
- turbing and lighting
- airport buildings
- radio aids
- traffic control
- communications
- airport management

ign, struct and nager

10 Days' FREE examination

Mail Coupon

This up-to-date and comprehensive manual covers each factor in location, design, operation, and management to provide a complete, overall grasp of all the fields included in modern airport development. It provides engineers, airport managers, airlines personnel, and aviation officials with complete airport requirements, design tables and data, and appendix of specifications and technical articles, extensive illustrations—the latest and best information available on each subject. The book supplies practically all the material needed for the complete design of an airport.

Just published!

## AIRPORTS: DESIGN, CONSTRUCTION AND MANAGEMENT

By HORACE K. GLIDDEN

District Manager, C.A.A., State of Idaho

HERVEY F. LAW

Manager, Washington National Airport

and JOHN E. COWLES

Chief of Airport Design Unit, First Region, CAA

720 pages, 6 x 9, illustrated, \$7.00

This book supplies the completely practical and useful data necessary to the development and management of the modern airport—location of site, design features, technical details, function of each building, engineering field tests, operation of the airport, etc.

A few of the features the book presents:

- services the CAA renders free of charge, and who to contact in this agency
- description of radio facilities in terms understandable to all
- concise, practical treatment of pavement design
- presentation of necessary soils engineering and tests
- a functional organization chart adaptable to management of an airport of any size
- description of the purpose and function of each building
- consideration of site from standpoint of carrier problems, engineering problems and commercial success
- necessary formulae for drainage system required
- plans and drawings providing an overall picture of work required

McGraw-Hill Book Co., 330 W. 42nd St., NYC 18

Send me Glidden, Law and Cowles' Airports: Design, Construction and Management, for 10 days' examination on approval. In 10 days I will send \$7.00 plus few cents postage, or return book postpaid. (Postage paid on cash orders.)

Name \_\_\_\_\_

Address \_\_\_\_\_

City and State \_\_\_\_\_

Company \_\_\_\_\_

Position \_\_\_\_\_ CM 12-46

(For Canadian price, write: Embassy Book Co., 12 Richmond St., E. Toronto, 1)



# "What you trying to do, Bill....catch the early worm?"

**Bill:** "Surprised you, eh?—rolling in here two hours ahead of schedule. Boy, does this new rig roll!"

**Jim:** "What you got in it?—jet propulsion?"

**Bill:** "You're getting hot. The Old Man specified a Timken Two-Speed heavy-duty Axle for it."

**Jim:** "That's good?"

**Bill:** "It's terrific! Now *I* do the passing on hills, level stretches, and everywhere else. This Timken has high and low ratios that give you just the right 'spread' for the greatest number of road conditions. And you get twice as many gear combinations!"

**Jim:** "Yeah, I know."

**Bill:** "And with that Timken Easy-Power

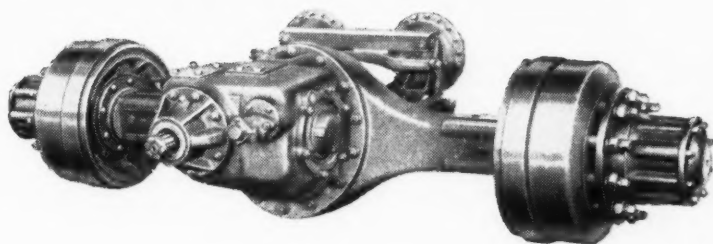


Shift you can go into either low or high in a split second without clutching—and without losing vehicle speed too. What's more, you can make long grades without working up a sweat."

**Jim:** "Which is something else I know. You haven't forgotten that I'm using a Timken Two-Speed too, have you? And now let me tell *you* something: That Old Man of yours is going to fall out of his chair when he sees how that two-speed saves gas, too."

**Bill:** "And *time*! I know a way he can tighten up my schedule that'll get me an extra night a week with my family."

**Jim:** "This calls for a celebration! Hey, Mame!—bring on those steaks!"

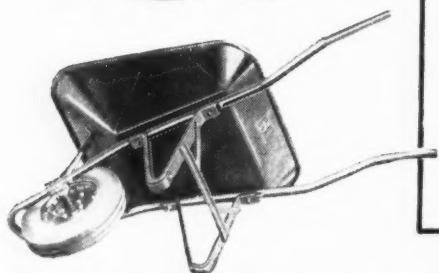
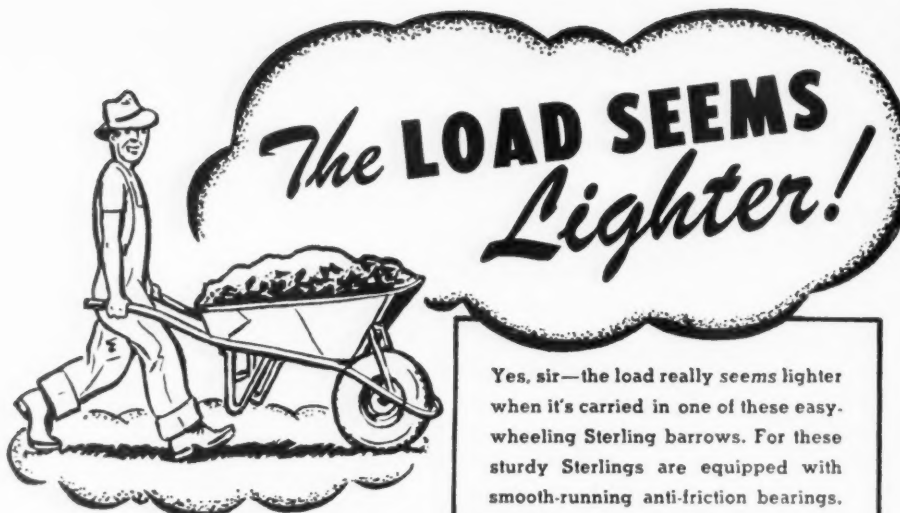


Timken Two-Speed Double-Reduction Axles are the most modern two-speeds in production today. S and U Heavy-Duty Series illustrated above offer every modern feature! New hypoid-helical double-reduction drive . . . new Timken Easy-Power Shift permits effortless change of axle ratios as required for speed, load or road conditions . . . new differential with 9-16 tooth combination . . . new "DP" Heavy-Duty Hydraulic Brake and famous "P" Series Power Brake are interchangeable . . . plus scores of other features.



## TIMKEN AXLES

THE TIMKEN-DETROIT AXLE CO., DETROIT 32, MICH.  
WISCONSIN AXLE DIVISION • OSHKOSH, WIS.  
TIMKEN AXLE BRAKE DIVISION • DETROIT 32, MICH.



Yes, sir—the load really seems lighter when it's carried in one of these easy-wheeling Sterling barrows. For these sturdy Sterlings are equipped with smooth-running anti-friction bearings. Scientifically designed... well-balanced... actually 80% of the load is carried by the wheel; only 20% by the operator. While deliveries are still retarded, due to the material situation, we'll make every effort to serve you as soon as conditions permit.

STERLING WHEELBARROW CO., Milwaukee 14, Wis.

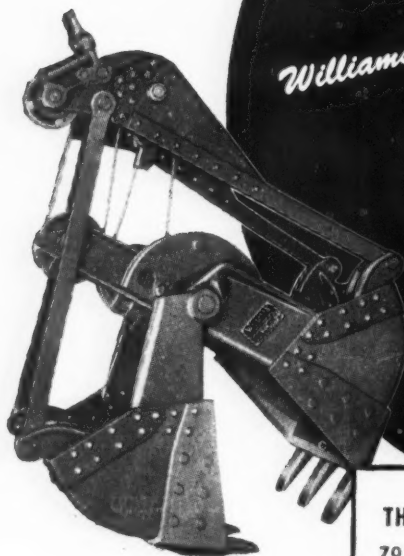


Look for this Mark of  
STERLING Quality

**Sterling**  
WHEELBARROWS

*Follow the Leader  
FOR BEST RESULTS*

**WELLMAN**  
*Williams Type* **BUCKETS**



• The bucket leader is Wellman—pioneer in building buckets of welded rolled steel! Gives you longer, better service at lower cost on all types: Multiple Rope, Power Arm, Dragline, Power Wheel, Special Service —  $\frac{3}{4}$  to  $16\frac{1}{2}$  yd. capacity.

SEND FOR BULLETIN

THE WELLMAN ENGINEERING COMPANY  
7017 CENTRAL AVENUE • CLEVELAND 4, OHIO



**AUTOMATIC FLOW RESPONSIVE EQUIPMENT AND METHODS**—Bulletin No. 1200 is handy reference book and contains material dealing with automatic flow

responsive equipment and methods in continuous process operation. Photographs of chemical proportioning equipment and typical installations are supplemented by many flow diagrams and detail drawings. Proportioners method is clearly explained and operation of equipment is demonstrated by two-color diagrams. Catalog permits purchaser to select and size equipment for most treating, sampling, blending, and diluting applications. —Proportioners, Inc., Providence 1, R. I.

**DIESEL POWER** — (16-p. booklet) Pictures wide variety of uses of diesel power.—Caterpillar Tractor Co., Peoria 8, Ill.

**ENGINES** — (32 pp., illustrated) Traces 40-year history of company and outlines plans for future. It contains many photographs of typical applications.—Waukesha Motor Co., Waukesha, Wis.

**SEISMOGRAPH FOR ROAD SOUNDING**—(4-p. folder) Describes light, portable apparatus for use in mineral and oil prospecting, engineering and geological subsurface investigation, solution of foundation problems, and study of vibration problems. Specifications are given for oscillograph, camera and detectors.—Geophysical Instrument Co., Key Blvd., and Nash St., Arlington, Va.

**METALLIZING PROCESS** — (86-p. pocket-size handbook, fourth edition) Contains up-to-the-minute data on preparation of surfaces, metallizing technique and finishing procedure and complete information on corrosion resistance, specific gravity, hardness, bond strength, tensile strength and relative shrinkage. It is profusely illustrated with pictures, drawings, diagrams, charts and graphs. Price is \$2.—Metallizing Engineering Co., Inc., 38-14 30th St., Long Island City, N. Y.

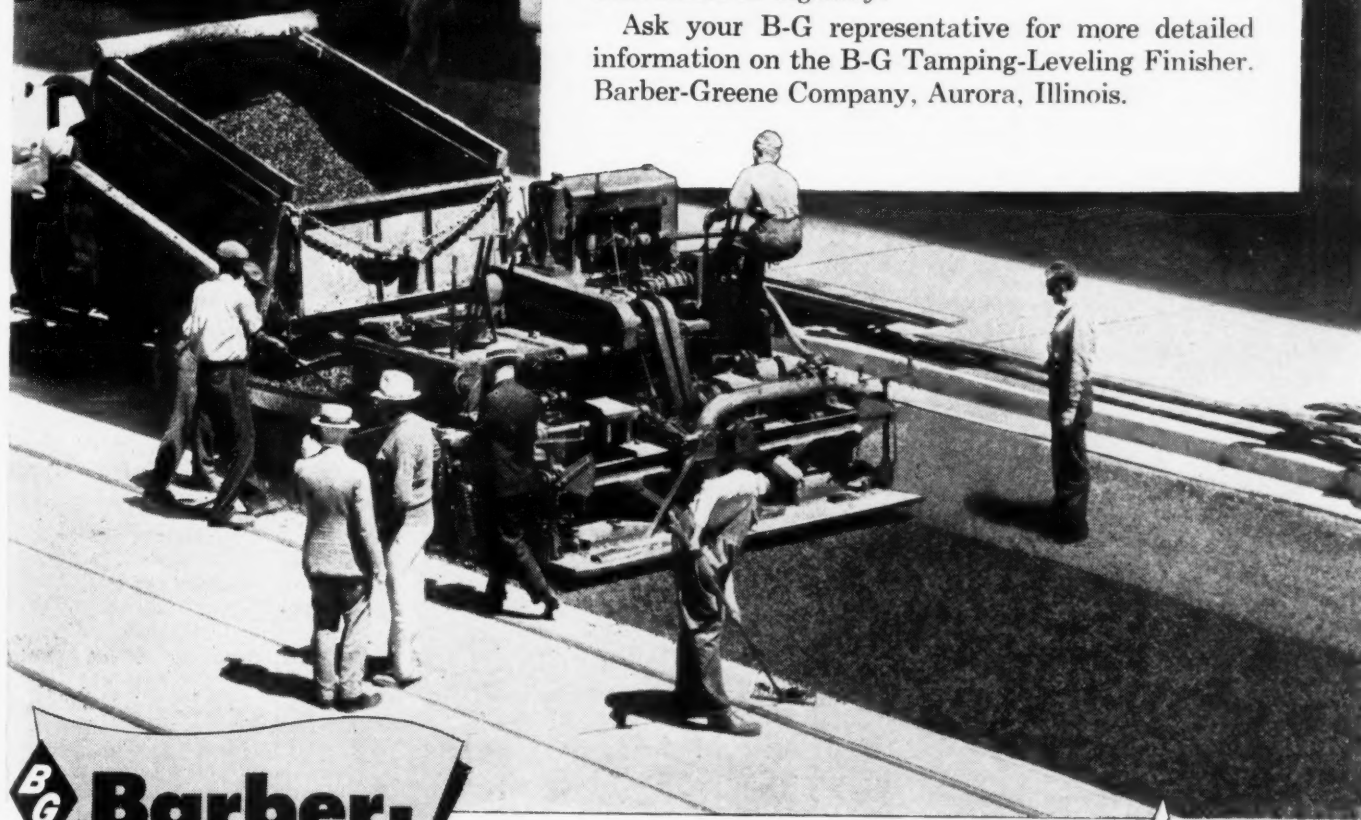


# How a **B-G Finisher** Eliminates New Construction

• Putting a smooth riding asphalt surface on top of neglected highways and streets is good business. Not only is the original cost of construction salvaged, thus effecting a saving to the tax payer, but a great reduction is made in construction time with minimum traffic interruption.

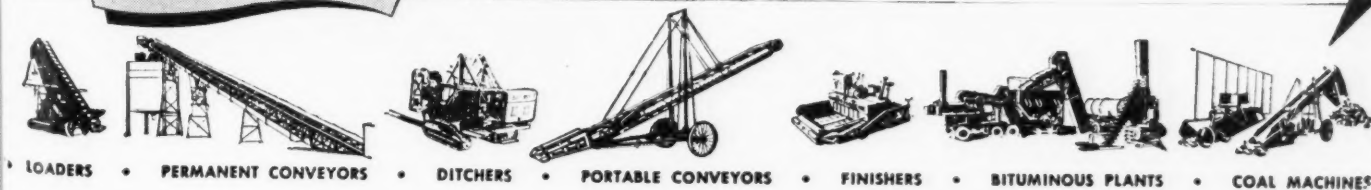
Equally important in the current construction picture is the possibility of starting such resurfacing programs with funds already available. Practically no engineering is required, releasing the Engineering Department for other vital problems. The Barber-Greene Finisher places the one- or two-course resurface directly on the original surface. It automatically levels and produces a ripple-free riding surface. The old paving is left in place and forms an ideal sub-base, resulting in an improved and more permanent street or highway.

Ask your B-G representative for more detailed information on the B-G Tamping-Leveling Finisher. Barber-Greene Company, Aurora, Illinois.



**B-G**  
**Barber-Greene**

CONSTANT FLOW EQUIPMENT

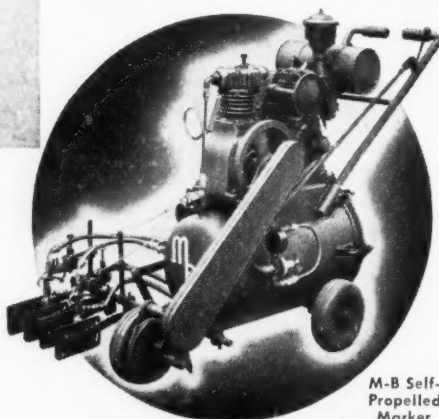


LOADERS • PERMANENT CONVEYORS • DITCHERS • PORTABLE CONVEYORS • FINISHERS • BITUMINOUS PLANTS • COAL MACHINES



**STREET STRIPING  
AT 10,000 FEET PER HOUR!**

Now — you can put street striping on a fast production basis with M-B Self-Propelled Marker. Because it operates at a constant speed, this efficient M-B machine produces a more uniform line . . . lays down more lines per hour . . . increases lineage per gallon of material used. No pushing necessary. Operator merely guides machine. Capacity, 10,000 feet per hour.



M-B Self-Propelled Marker

Use an M-B for **SAFETY!** It handles ANY type of striping job — traffic lines, straight or curved, single or double — parking areas — safety zones — crosswalks, etc. Also marks athletic fields, airports, tennis courts, etc. Quickly convertible to all-purpose paint sprayer. Hand-propelled and self-propelled models. Write for literature.

MEILI-BLUMBERG CORP.  
Box CM-12 New Holstein, Wis.



**MARKERS**

**CONTRACTORS RUBBER PRODUCTS**  
available from Stock for immediate Delivery

**CONVEYOR, ELEVATOR and  
TRANSMISSION BELTING**

all widths and plys

**V-BELTS** all sizes

**HOSE** all sizes

AIR	WATER	SUCTION	COMPRESSOR
FUEL	STEAM	WELDING	PILE DRIVERS
FIRE	VACUUM	DISCHARGE	ROAD BUILDERS

and **BOOTS, DREDGE SLEEVES, PUMP DIAPHRAGMS, ETC.**

and everything rubber for Industrial Requirements

PHONE . . WIRE . . WRITE

Write for new catalog

**CARLYLE RUBBER  
CO., Inc.**

62-66 PARK PLACE NEW YORK 7, N. Y.

Phone: BARclay 7-9793

**FLOODLIGHTS**—(Two-color folder) Covers Nite-Hawk portable floodlight and searchlight units and shows application of power units with Thor portable electric tools. Another illustrated folder describes company's line of diesel electric generating plants.—Winpower Mfg. Co., Newton, Iowa.

**AUTOMATIC CLARIFIERS**—(8-p. product manual) Describes use of oil clarifiers on all sizes of trucks, buses and tractors, as well as unit for diesel engines. Size recommendations and specifications are given.—Briggs Filtration Co., Bethesda 14, Md.

fluorescent  
SERVICE  
AND  
MAINTENANCE  
manual

**FLUORESCENT SERVICE AND MAINTENANCE**—(80-p. pocket-size manual) Contains full details on fluorescent lamp operation and various problems encountered in maintenance of fluorescent systems. In addition to text material on trouble shooting, testing procedures and cleaning methods, there are many illustrations and diagrams of different circuits and test equipment that can be built in electrical shops. It also contains helpful cross reference and glossary of terms used in fluorescent lighting. Price is \$1.—Sylvania Electric Products, Inc., Dept. MA-3, 211 Derby St., Salem, Mass.

material on trouble shooting, testing procedures and cleaning methods, there are many illustrations and diagrams of different circuits and test equipment that can be built in electrical shops. It also contains helpful cross reference and glossary of terms used in fluorescent lighting. Price is \$1.—Sylvania Electric Products, Inc., Dept. MA-3, 211 Derby St., Salem, Mass.

**DOUBLE-PASS FIREBOX BOILERS**—Bulletin No. RM-1 illustrates line of riveted or welded double-pass steel firebox boilers that are built especially for stoker, oil, or gas firing. They range in capacity from 26 to 305 hp., in three series.—The Brownell Co., 426 Findlay St., Dayton 1, Ohio.

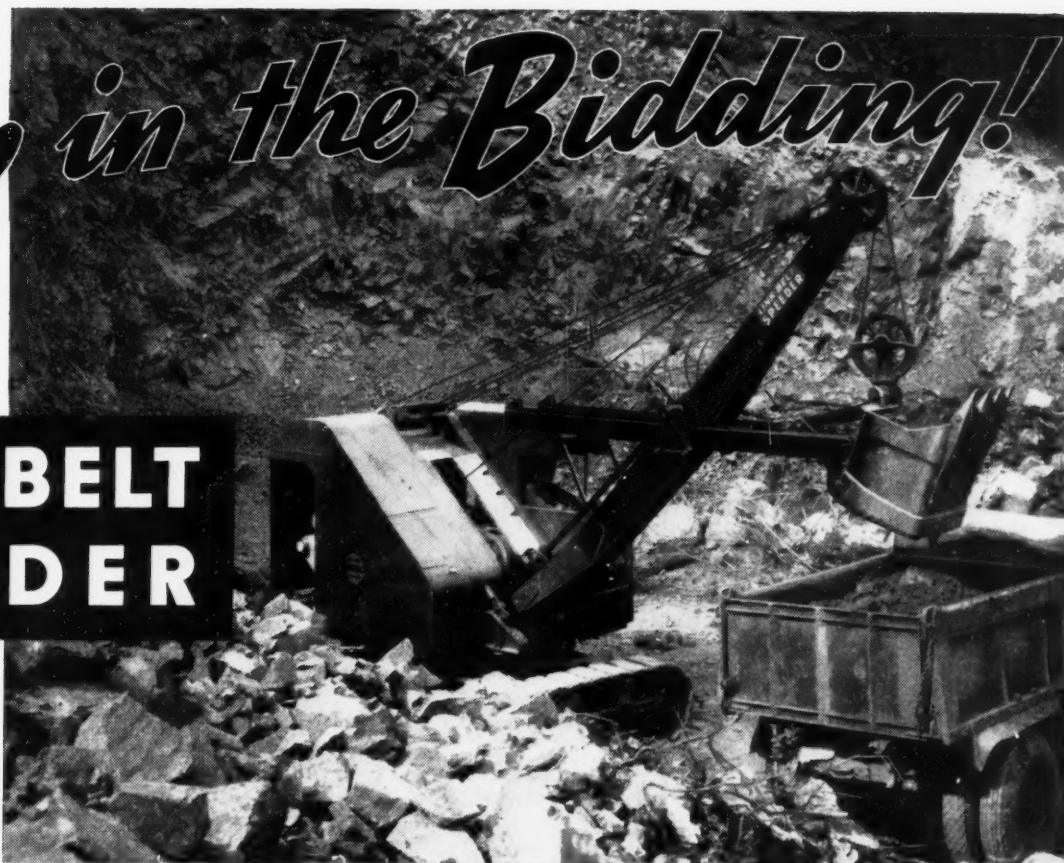
**BLOWERS AND EXHAUSTERS**—(8-p. two-color folder) Covers centrifugal blowers and exhausters and stresses wide range of applications where R-C centrifugals have been or may be used. It is stated that these units are equally effective as boosters or as exhausters, and example is cited where gas at 1,000 deg. F. has been successfully circulated at 100-lb. pressure.—Roots-Connorsville Blower Corp., Connorsville, Ind.



# Keep in the Bidding!

WITH  
YOUR

## LINK-BELT SPEEDER



### QUICK, EASY CONVERTIBILITY KEEPS THIS MACHINE BUSY *More of the Time!*

The standard Link-Belt Speeder "Shovel-crane", readily converted from one front-end attachment to another, will do most of the earth-moving or material-handling operations required on the average job. The contractor with a Link-Belt Speeder can thus bid on many kinds of jobs, and as a result, keeps busy more of the time. The Link-Belt Speeder "Shovel-crane" does more work — more kinds of work, more of the time!

For Prompt, Efficient, Convenient Sales and Service:  
There is a Link-Belt Speeder Distributor Located Near You

LET'S MAKE AMERICA  
THE LAND OF  
**GOOD ROADS!**

## LINK-BELT SPEEDER

*Builders of the Most Complete Line of*  
**SHOVELS-CRANES-DAGLINES**

LINK-BELT SPEEDER CORPORATION, 301 W. PERSHING ROAD, CHICAGO-9, ILL.  
A DIVISION OF LINK-BELT COMPANY

## HIGHWAY CURING ECONOMY DEMANDS

# KEYSTONE

### KAPCO Concrete Curing Compound

Kapco Concrete Curing Compound continues to replace the less economical and outmoded methods of curing used in the past. Unaffected by wind or weather this membranous film provides the maximum in moisture retention during the critical curing period and requires no after expense of a removal crew. Easily applied, this "wax-free" resin based compound prevents surface dusting, minimizes hair checking, crazing and reduces shrinkage. Write for complete information and technical data.



## KEYSTONE ASPHALT PRODUCTS COMPANY

A Division of the American Marietta Co.  
43 E. OHIO STREET, CHICAGO 11, ILL.

ASK ABOUT THE NEW EQUIPMENT LINE FOR  
CONCRETE CURING COMPOUND APPLICATION

## EQUIPMENT MEN

### and Their Companies



Thomas A. DeMarco, formerly with United Aircraft Products Corp., has been named executive assistant to **John J. Bergen**, chairman of the board of Gar Wood Industries, Inc., with headquarters in New

York. Mr. DeMarco was previously with the Chapman Valve Manufacturing Co., Springfield, Mass., and then with the Johns-Manville Sales Corp.

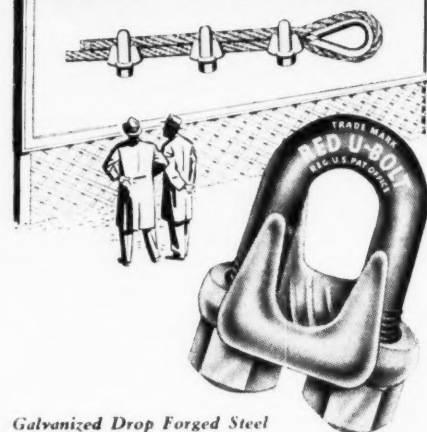
**James D. Greensward** has been named assistant to **William C. Johnson**, vice-president of the general machinery division of the Allis-Chalmers Mfg. Co., Milwaukee, Wis. Mr. Greensward has been associated with Allis-Chalmers since 1922. **Ned Landis** has been named branch manager of the Syracuse, N. Y., office of the Allis-Chalmers Mfg. Co., Milwaukee, Wis. Mr. Landis has been associated with the Cincinnati office of Allis-Chalmers.

**International Harvester Co.** has a new \$45,000,000 plant in Louisville, Ky., bought from the War Assets Administration. It is expected that at full capacity next fall the plant will turn out 109,000 tractors annually.

**Gardner-Denver Co.** announces the promotion of **B. P. Spann**, formerly advertising manager to personnel and industrial relations director. Mr. Spann will be in charge of all factory and office personnel for the company's Quincy plant. The new advertising manager is **D. P. Tunnicliffe**.

**John E. Anderson** has been appointed manager of the new Indianapolis sales and service office of the Wheelco Instruments Co., Chicago, Ill., at 107 S. Capitol Ave., Indianapolis 4, Ind. Mr. Anderson will be assisted by **Walter A. Jones**, service engineer, at Indianapolis, and by **L. A. Wallingford**, district manager, Cincinnati.

## SOLD EVERYWHERE



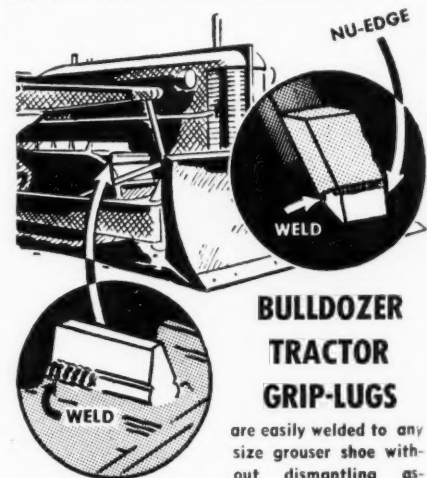
Galvanized Drop Forged Steel

The better distributors, equipment dealers and hardware stores sell Crosby Clips—America's leading wire rope fastening. A product of American Hoist & Derrick Co., St. Paul.

# CROSBY CLIPS

## SAVE and INCREASE TRACTOR POWER

The Bulldozer Blade Nu-Edge Bar is butt-welded to new or worn blade and welding bead covered with a thin layer of hard-surfacing electrode—Afford 2000% savings in blade replacements.



### BULLDOZER TRACTOR GRIP-LUGS

are easily welded to any size grouser shoe without dismantling assembly. Made of special work-hardening steel which becomes tougher with use—outwearing original grouser.

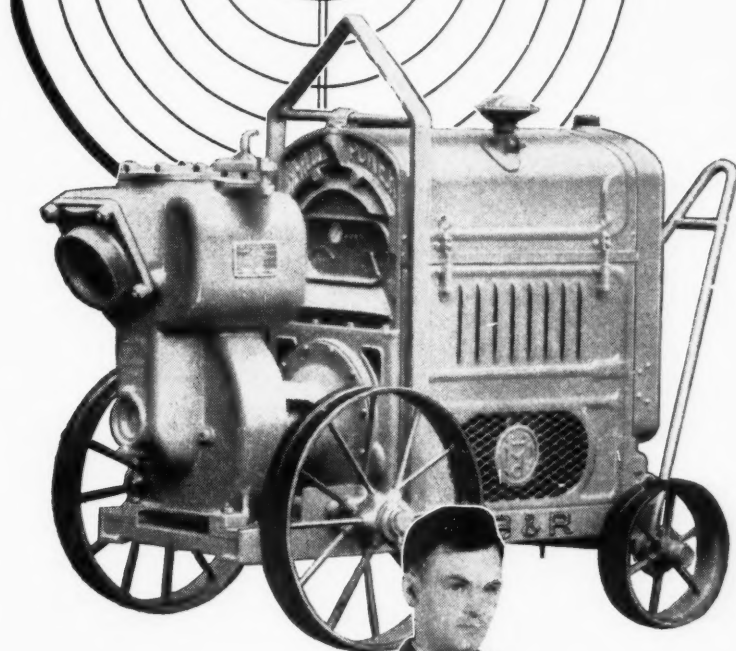
See Your Local Dealer  
Send For Folder CM Today

SOLE PRODUCERS  
**ALLIED STEEL PRODUCTS, INC.**  
7835 BROADWAY • CLEVELAND 5, OHIO



# PERFORMANCE!

## *Tells more than Words*



For size of pump, for power consumed, for dollar invested, Gorman-Rupp pumps will out-perform any other pump. This is a "put up or shut up" proposition for we are willing to let you prove this for yourself by a free trial with no strings attached.

There is a Gorman-Rupp pump to fit any job. If you want a handy all purpose pump as easy to carry as a bag of tools, the sturdy little "Midget" will fill the bill. It will deliver as much as 3000 gallons per hour at continuous performance. If you have a heavy dewatering job that calls for as much as 125,000 gallons per hour get a Gorman-Rupp heavy duty model pump.

Gorman-Rupp self-priming centrifugal pumps never have to be shut down to be cleaned out -- there is no recirculation orifice to get plugged nor control valve to get jammed.

They are streamlined inside where streamlining counts.

Ask what you want of a Gorman-Rupp pump. Give it any kind of a test. Actual performance on the job will convince you.

*For details call your nearest distributor.*

**THE**



**GORMAN-RUPP COMPANY**

308 BOWMAN STREET • MANSFIELD, OHIO



### THE HIGHWAY MODEL DD MOTOR DRIVEN SAND AND CINDER SPREADER

The Model DD Highway Spreader clamps onto the tail gate of any standard dump truck permitting one man to cast a uniform swath of sand or cinders 8 to 60 feet wide at truck speeds up to 35 miles per hour. Simple adjustment keeps spreader in horizontal position to cast material under and ahead of rear truck wheels permitting truck to travel ahead of traffic with safety. Material is fed into hopper by gravity—no shoveling is required. Unit is equipped with adjustable feed gates controlling thickness of spread and the throttle on the 1½ H.P. Briggs and Stratton gasoline motor determines the width of spread. Widely used for ice control work in winter, the Highway Model DD is also ideal for seal coat work and dust control in summer. Write for descriptive literature.

### THE HI-WAY MODEL R MATERIAL SPREADER

Offers these time-saving profit-making features

- Spiral feed roller with agitator-conveyor provides fast, accurate distribution of material. Adjustable feed gate controls desired thickness of spread. Width of spread is adjustable from one foot to full width of spreader.
- Reversible transmission on both feed roller and agitator-conveyor permits quick and easy change from forward to reverse motion simply by shifting lever.
- Swivel type self coupling adjustable hitch allows traction wheels to remain in constant contact with ground regardless of position of truck or spreader. Entire unit is balanced for easy hook-up to truck.



WRITE FOR COMPLETE DETAILS

**HIGHWAY EQUIPMENT COMPANY**  
602 D Avenue, N. W. Cedar Rapids, Iowa

Manufacturers of the world's most complete line of spreaders

Sold and distributed by leading Construction Machinery Dealers throughout the United States and Foreign Countries;

A Pacific Northwest laboratory to place research in close contact with treatment of Douglas Fir and other western species will be opened Nov. 1 at the Wauna, Ore. plant of the American Lumber and Treating Co., F. W. Gottschalk, Chicago, company technical director, has announced. It will be in charge of William A. McFarland, chemical research engineer, who previously directed process control for the company's ten plants from the central technical laboratory in Chicago.

Appointment of Harrison Wood as New York district manager for SKF Industries, Inc., ball and roller bearing manufacturers, is announced by R. R. Zisette, general sales manager. Mr. Wood, assistant district manager since 1941 and for many years a field engineer for the firm, succeeds John D. Williamson, who resigned because of ill health after serving as head of the district for 23 years.

T. J. Flynn, has resumed his duties at the southeastern sales office of the American Lumber & Treating Co., 721 Graham Bldg., Jacksonville, Fla., after 48 months of military service.

## Shunk Snow Plow and Ice Removal BLADES

Proved record of superior performance. Made of specially developed steel to withstand severe service conditions. FOR ALL TYPES AND MODELS OF SNOW PLOWS Various widths, lengths, thicknesses—flat or curved—standard or special—punched ready to fit your machine.

SHUNK SAW-TOOTH ICE BLADE Amazingly effective. Thoroughly breaks up and removes heavy, slippery ice and snow formations. Replaces all types of snow plow blades or maintenance units. Write for Bulletin and name of nearest Distributor.



**Shunk**  
**MANUFACTURING COMPANY**  
ESTABLISHED 1854  
BUCYRUS, OHIO



**A. E. Anderson**, recognized nationally as an authority on the engineering uses of explosives, has retired as manager of the Seattle division, E. I. duPont de Nemours & Co., after 39 years with the company.



**Reed G. Landis** has been appointed vice-president in charge of sales of the Great Lakes Supply Corp., Chicago, Ill., wholesale distributors of industrial, railway, and contractors' supplies.

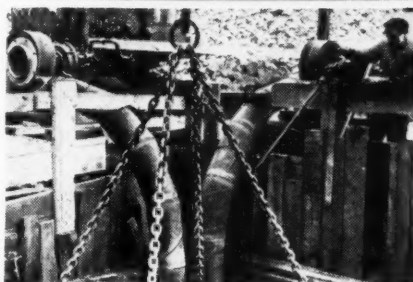
The Board of Directors of Johns-Manville Corporation has elected **Lewis H. Brown**, president since 1929, to be chairman of the board and chief executive officer of the company. **R. W. Lea**, was elected president; **Alvin Brown** vice president for Finance and a member of the Board of Directors; and **John P. Syme** vice-president and assistant to the chairman of the board.

**Raymond G. Beckley**, of the sales staff of the Insulux Products division of Owens-Illinois Glass Co., Toledo, has been named district manager of the Pacific Coast, with offices in Los Angeles.

The Atlas Mineral Products Co., manufacturers of acid- and alkali-proof cements, floors, plastic linings, jointing materials and protective coatings, announces the formation of an affiliate organization, The Atlas Mineral Products Co. of Texas, Inc., Houston 1, Texas. The new affiliate includes a manufacturing plant for sulphur cements and other firm products and handles sales in the territory west of the Mississippi, except Minnesota, North Dakota and eastern Missouri, and in western Tennessee, Mississippi and Louisiana.

**W. O. (Bill) Kupper** has been appointed manager, Middle Western sales, Ladish Drop Forge Co., with offices at 332 S. Michigan Ave., Chicago, Ill. Mr. Kupper will direct the sale of the complete line of Ladish seamless welding fittings, forged steel fittings and forged steel flanges.

## Another Job Ventilated at Lowest Cost with "VENTUBE"



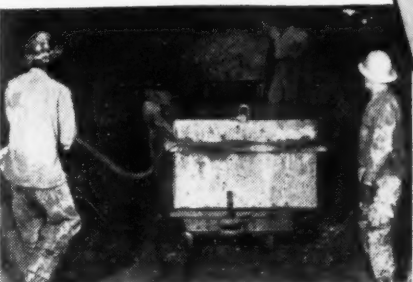
TWO FANS FOR DOUBLE HEADING



"VENTUBE" LINE TO EACH HEAD



PLENTY OF FRESH AIR FOR FACE



KEEPS MEN ALERT FOR HARD WORK

**Nicholas Di Menna & Sons**, contractors for this Bronx Park sewer tunnel in New York City, picked "Ventube"\* for good ventilation at lowest cost.

Why not try "Ventube" for your next tunnel job? If you want the alternate blower-and-suction action, use the new Helical-Type "Ventube" that gives you 60 per cent more suction airflow.

For any job, there's a "Ventube" system to fit your purposes and your pocketbook. For further details, consult our Technical Service. Write to E. I. du Pont de Nemours & Co. (Inc.), Fabrics Div., Fairfield, Connecticut.

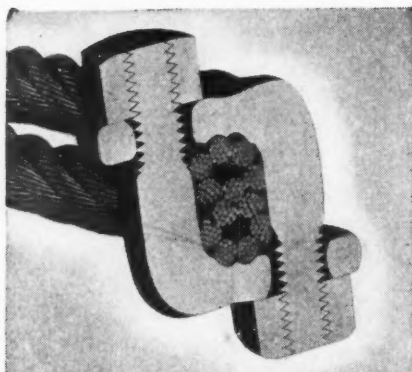
\*"VENTUBE" is Du Pont's trade mark for its flexible, synthetic-rubberized ventilating duct.

# DU PONT "VENTUBE"

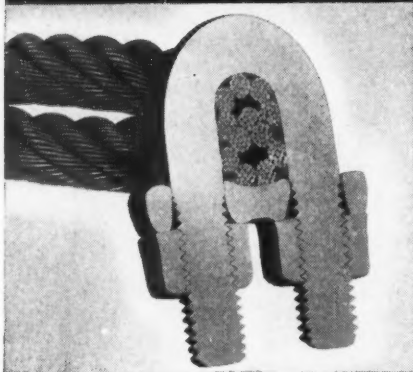
REDUCING COSTS THROUGH  
BETTER VENTILATION



BETTER THINGS FOR BETTER LIVING  
... THROUGH CHEMISTRY



### WHICH WAY TO FASTEN PREFORMED WIRE ROPE?



The cross-section views show what happens to wire rope. In Fig. 1, Laughlin's "Fist-Grip" Safety Clip holds the  $\frac{5}{8}$ " rope with hardly any distortion (note hemp centers). In Fig. 2, hemp center under U shows how rope is squeezed and flattened by U-bolt's smaller bearing area and "Finger-Pinch". Both were tightened to same tension by torque-indicating wrench.



### Here's Why "Fist-Grip" Clips Work Better

Laughlin Safety Clips have identical saddles, flat sides; hold rope firmly without crushing. Saddles fit snugly against "live" and "dead" ends. Fewer clips deliver full rope power. The only clips with drop-forged bolts. Test them, for your rope's sake.

Distributed through mill, mine and oil field supply houses. Write for catalog, Dept. 1, The Thomas Laughlin Co., Portland 6, Maine.

**LAUGHLIN**



THE MOST COMPLETE LINE OF DROP-FORGED WIRE ROPE AND CHAIN FITTINGS



**H. J. Hocker**, former chief of production for Chicago Engineer Procurement District, has been appointed general plant manager of the C. R. Jahn Co., Chicago, Ill., manufacturers of heavy-duty low-

bed trailers.

**Stewart Construction Co.** of Oklahoma City has taken over the business of Gunit Cement Gun Construction Co. and will continue to do air-applied concrete construction in a large surrounding territory.

**The Flexible Steel Lacing Co.**, Chicago, Ill., manufacturers of Alligator, Flexco HD and Flex V belt fasteners and Alligator belt cutters, announces the appointment of **James Gillespie** as sales representative for Texas, Oklahoma, Arkansas and Louisiana. He has taken over the job handled by his father, the late J. W. Gillespie.

## RAPID!



Junior Model with Horizontal Frame Attachment.

Will break 15 inch reinforced concrete walls up to 10 feet high. Frame attachment can be removed and boom tipped up to vertical position for breaking all types of pavement

Ask about our

**HEAVY-DUTY TYPE**

**R. P. B. CORP. MFR'S. of RAPID  
PAVEMENT BREAKER MACHINES**

1517 Santa Fe Ave. Los Angeles 21, Calif.

Now . . .

## Make quicker, more accurate calculations

with these  
**NEW, HELPFUL  
MATHEMATICAL TOOLS**

HERE is a practical, easy-to-use book that gives engineers in any field many special mathematical tools basic to their work. It shows how these tools are applied to compute both speedily and reliably. Concise yet complete, this book is valuable for reference or study covering every phase of mathematics you are likely to meet—from simple numeric computations, through integration and summation. Many of the topics discussed are new, while others which are more commonly used are presented with new applications, thus increasing their usefulness.

Just Published

## MATHEMATICAL AIDS FOR ENGINEERS

By **Raymond W. Dull, Consulting Engineer**  
369 pages, 5 1/4 x 8 1/4, \$4.50

New equations for the construction of several important types of alignment charts are given for using standard engineering scales which simplify the construction of the charts. The presentation of logarithmic and exponential functions is thorough and should prepare the reader for more advanced applications of mathematics. The exponents of the Napierian base are given special attention. Unusual application of the triangle and circle as mathematical tools will be found in the text, some even involving differential equations. Considerable attention is devoted to vector analysis, and methods are given which simplify the solution of somewhat difficult engineering problems. The introduction of vector images opens a new field for vector application. The book ends with an introduction to differential equations to apply some of the mathematical tools supplied earlier.

### Some of the 28 chapters cover:

- logarithms as an implement
- organic decay or dying-out functions
- circles as tools
- imaginary and complex numbers
- energy
- linear motion
- kinetics of rotation
- plane motion
- images
- differential equations of the second order
- linear differential equations of the nth order with constant coefficients

**EXAMINE 10  
DAYS FREE**

**Mathematical Aids  
for  
Engineers**

Mail this  
coupon today

McGraw-Hill Book Co., 330 W. 42nd St., NYC 18  
Send me Dull's Mathematical Aids for Engineers for 10 days' examination on approval. In 10 days, I will send \$4.50 plus few cents postage, or return book postpaid. (We pay postage on cash orders.)

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City and State \_\_\_\_\_  
Company \_\_\_\_\_  
Position \_\_\_\_\_ CM 12-10

For Canadian price, write: Embassy Book Co.,  
12 Richmond St. E. Toronto 1





**TAKE  
A LOOK  
INSIDE...**

**for another Transite Sewer Pipe economy**



**ONE LOOK** at the smooth interior surface of Transite Sewer Pipe ( $n=.010$ ) tells you "Here's a pipe with high-flow capacity!" This often permits flatter grades, with lower trenching costs—especially important in rock excavation or wet trenches. Other far-reaching economies:

**Use of smaller pipe**—Instead of using flatter grades, designers sometimes take advantage of Transite's high-flow capacity to use smaller diameter pipe.

**Lower handling costs**—Transite's long 13-foot lengths and light weight mean more pipe per truckload . . . fewer joints to assemble . . . fewer man-hours to lay to line and grade.

**Reduced treatment costs**—Transite joints, combining tightness with flexibility, guard against infiltration . . . reducing load at disposal plant, helping keep treatment costs low.

**Smaller treatment plants**—Possible because Transite minimizes infiltration. Where new plants are being designed, substantial savings in initial cost may be effected.

Further details on Transite Sewer Pipe for gravity lines are given in brochure TR 21-A; on Transite Pressure Pipe for force mains and water lines, in brochure TR 11-A. Write Johns-Manville, Box 290, New York 16, N. Y.



**Johns-Manville TRANSITE SEWER PIPE**

*Announcing the New*

## HEAVY DUTY ELECTRIC MOTOR

to operate our

## KM DRILLS

*The Easy Way*



The Heavy Duty Motors have considerable more power, stronger built yet are not too large to move or handle by hand in out of the way places.

Designed for fast, easy work in mud, clay or sand. These heavy duty electric motors put down holes from 3" to 16 inches in amazingly short time.

Cuts digging time to 50 or 75%, simplifies work in hard to reach places, drills at any angle and under streets, alleys and railroads.

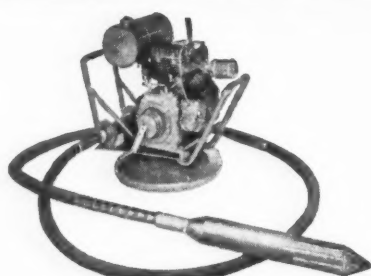
Our equipment is not a one-purpose tool. A piece of equipment used for Telephone and Telegraph, Power and REA construction, elevator shafts in buildings and pre-boring for pilings.

Drill under streets, alleys, highways and railroads for gas, water and sewer mains up to 16 inches in diameter with our heavy duty motors. Our patented KM Drills are operated by either air or electric motors.

Let us tell you about this equipment.

Write for further information

**KA-MO TOOLS, INC.** 2121 SOUTH TROY STREET  
CHICAGO 23, ILLINOIS



Concrete

### VIBRATORS

Gasoline Engine or  
Electric Motor Driven

### CONCRETE GRINDERS

#### OTHER PRODUCTS

**FRONT END SHOVELS**  
for Industrial Tractors

**HEATING KETTLES**  
for Asphalt and Tar

**AGGREGATE DRYERS**  
for Stone and Sand

**ASPHALT PLANTS**  
Portable — Stationary

Write for Circulars

**White Mfg. Co.**

ELKHART

INDIANA

# Watch



*For the Latest in*

Pumps . . . Mixers . . .  
Concrete Guns . . .  
Batching and Placing  
Equipment . . . Hoists  
. . . Power Saws . . .  
Electric Generator  
Sets . . . Carts . . .

**CONSTRUCTION MACHINERY CO.**  
Waterloo, Iowa

**Insulated Siding Co.**, Culver City, Calif., has construction under way on a \$200,000 plant for production of a new siding formed of Hawaiian cane board and a product known as "brixite."

**H. K. Porter Co., Inc.**, Pittsburgh, Pa., announces the election of C. R. Dobson as vice-president in charge of operation. Mr. Dobson, formerly chief industrial engineer of the Jones & Laughlin Steel Corp., will supervise operations of the seven Porter manufacturing plants.



**The Permanente Cement Co.**, operator of the world's largest cement plant at Permanente, Calif., has announced that its new \$500,000 plant in Seattle,

Wash., has been put into operation. Storage capacity is of 80,000 barrels. It will provide additional cement for use in western Washington, Canada and Alaska. The new division will be under the direction of **E. H. Kendall**.

**Russell F. Proffitt**, since 1933 Chicago divisional manager of The Timken Roller Bearing Co., has been transferred to the Washington, D. C. office as district manager. Mr. Proffitt began his career with Timken in 1923 in the Huntington, W. Va., office, where he introduced and developed the use of Timken bearings in mining equipment, as an improvement over the plain or cast iron bearings then generally in use. Prior to his joining the Timken organization, he spent several years with the American Car and Foundry Co., in the design of railroad and mine car equipment.

**Herbert W. Wehe**, president of Overly Manufacturing Co., Greensburg, Pa., has announced the acquisition of McAleenan Brothers Co., at 25th St. and Allegheny Valley R.R., Pittsburgh, through purchase. **George R. McAleenan** will continue as president of the company, according to Mr. Wehe, and all personnel is being retained. The McAleenan plant, established in 1911, produces boilers, tanks, stacks and heavy plate work for industrial plants, railroad, general contracting, etc.



# CLEAN UP



MICHIGAN MODEL TMDT-16 —  $\frac{1}{2}$  yd. shovel, 10-ton crane.

Equipped with Timken Tandem dual drive axle.

Total reduction in low gear 72.88-1.

Four Timken-Westinghouse air brakes.

## *with* MICHIGAN

You'll be 'way ahead when schedules are tough and competition is tougher. You can cut cost-per-job, clean up even the tough ones faster with MICHIGAN Mobile SHOVEL-CRANE. Its truck mobility saves valuable time when traveling from job to job and permits easier, quicker movement on the job. Smooth-as-silk finger tip air controls plus

dependable, economical power give you that fast, steady performance that counts . . .

Plan now to put MICHIGANS on your jobs! There's a complete line of  $\frac{3}{8}$  yard and  $\frac{1}{2}$  yard shovels, 6 to 12 ton cranes — all fully convertible, all one-man operated. Get the facts — ask for Bulletin CM-126.

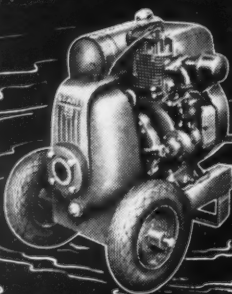
# MICHIGAN

## POWER SHOVEL COMPANY

BENTON HARBOR MICHIGAN

**NOW is the Time To Switch To BARNES**

**"33,000 for 1" Pumps**



**SOME USES FOR BARNES PUMPS**

Dewatering jobs, building foundations, pipe lines, subways, dams, canals, sewers, manholes, bridge piers, road repairs, drainage and maintenance, water supply for concrete mixing and road building.

**M**ORE and more contractors, constructors, builders and engineers are coming to realize the economy and dependability that go with Barnes Automatic Centrifugal Pumps. For Barnes Pump users get "33,000 for 1" performance—33,000 gallons of water quickly and efficiently pumped for each gallon of gasoline consumed.

Barnes users, too, get the benefit of Barnes precision engineering and close tolerance machining which make possible direct flow within the pump. There is no inner water maze to cause increased friction and lessen suction power or discharge pressure. The suction inlet is in direct line with the impeller to reduce flow friction and eliminate unnecessary labor of the power unit. Low fuel consumption and high dependable performance result, for in all Barnes Automatic Centrifugal Pumps water takes the natural, direct flow route.

For sale by leading distributors in all principal cities. If there is no distributor near you, write, phone or wire.



**BARNES MANUFACTURING CO.**

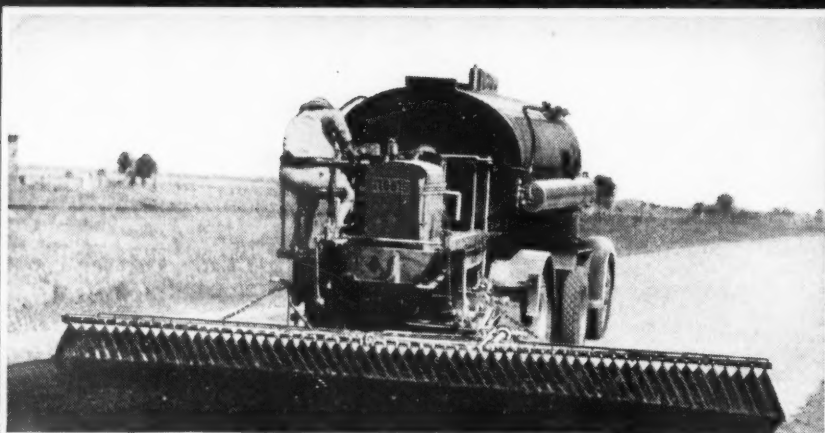
*Quality Pump Manufacturers for 50 Years*

MANSFIELD, OHIO

**E T N Y R E**

**"Black-Topper"**

**BITUMINOUS DISTRIBUTORS**



**ACCURATE DISTRIBUTION, DEPENDABLE PERFORMANCE**

Minimize maintenance, save time, reduce labor costs by accurately covering roads up to 24 feet wide in one trip with a dependable Etnyre "Black-Topper." See your Etnyre dealer or write us today for complete details.



**E. D. ETNYRE & CO., Oregon, Illinois**

Plans for construction of a fabricating and assembly plant for the new double-glazed insulating Twindow unit are announced by **Harry B. Higgins**, Pittsburgh Plate Glass Co. president. It will be located at Creighton, Pa., and construction will begin as soon as approval is granted by CPA.

The new million-dollar plant of the Tidewater Plywood Co. at Brunswick, Ga., is expected to begin operations the middle of October, according to **Col. John T. Houk**, president. Georgia hardwood will be converted into water-resistant plywood. Col. Houk said that due to the shortage of certain equipment, plywood production is not likely to begin until November.

\* \* \*

**Moles' Awards**

(Continued from page 87)

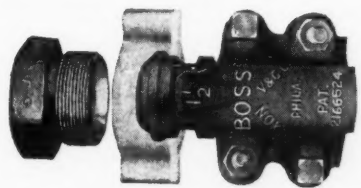
service, was born Jan. 6, 1880 in Manhattan, on 46th St. not far from his present office. Upon graduation in civil engineering from Harvard in 1900, he was asked by Uncle Thomas to work "for a couple of days" running out cross-sections. He never left the firm from that day to this, and became president in 1904, young as he was.

In 1916 he enlisted as a private in the New York National Guard, at the time he was president of the General Contractors Association of New York. After service on the Mexican border, he was commissioned 2nd Lieutenant in the 22nd Engineers, N.Y.N.G., which, with the outbreak of war became the 102nd Engineers. Crimmins went to France with the outfit and became its commander as colonel and received a citation for meritorious service.

Since 1865 the Crimmins company has been closely connected with the underground development of New York City, specializing in tunnels, foundations, excavation, utilities and waterfront work. Only once has it ventured beyond the metropolitan area, to take a licking on a New York barge canal contract. In the early days Col. Crimmins followed through on his grandfather's first love, street railway construction that began with cable lines, and he recalls covering miles of street car tracks in the



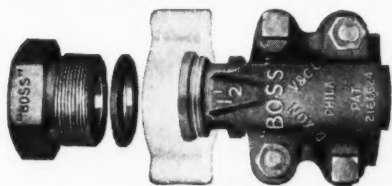
## Quality Couplings for Steam, Air, Water Hose



**"G J-BOSS"**

### Ground Joint, Style X-34 FEMALE HOSE COUPLING

Extensively used in pile-driving, grouting, hydraulics and general steam and air service in heavy construction. Ground joint union between stem and spud provides washerless, leakproof seal. Large Wing Nut facilitates coupling and uncoupling. Has powerful "Boss" Offset and Interlocking Clamp. Sizes  $\frac{1}{2}$ " to 4", inclusive. Cadmium plated-rustproof.



**"BOSS"**

### Washer Type, Style W-16 FEMALE HOSE COUPLING

Same as "G J-Boss" coupling, above, except that it is designed for washer instead of ground joint seal between stem and spud. Stem is full length, to assure ample support for hose under clamp area. Sizes  $\frac{1}{4}$ " to 4", inclusive.



### "BOSS" MALE COUPLING STYLE MX-16

Companion to both ground joint and washer type female couplings. Strongest and safest of its kind for all applications, including oil, butane, ammonia, etc. More convenient and economical than regular iron pipe nipples, as each size fits same size straight end hose. Sizes  $\frac{1}{4}$ " to 4", inclusive. Cadmium plated-rustproof.

Stocked by Manufacturers and Jobbers  
of Mechanical Rubber Goods.

IF IT'S A **DIXON** PRODUCT

IT'S DEPENDABLE

**DIXON**  
VALVE & COUPLING CO.

Main Office and Factory: PHILADELPHIA, PA.  
BRANCHES: CHICAGO, BIRMINGHAM, LOS ANGELES, HOUSTON

Bronx on horseback. Further reminiscing, the Colonel remembers big barns full of horses as part of the firm's haulage equipment.

The Crimmins company has excavated the foundations for most of New York's big buildings and power stations. Seldom does its activities get above curb level. Manhattan has been punched and probed by this firm time and again, until the island holds no secrets below street level. As a result, Col. Crimmins is both the official and unofficial expert on all underground New York.

Besides his contracting work, the Colonel is interested in a realty operation company, is a director of several corporations and hospitals and the New York Regional Plan Association. He founded the Harvard Engineering Society, and helped organize the Contractors Protective Association in 1900, designed to protect the owners and public against unscrupulous contractors working under ground.

In construction circles Thomas Crimmins is respected as the dean of New York contractors, but this shy, retiring, grand old Irishman wears his mantle lightly.

## KOTAL

*Master Mix  
Surfaces*  
quickly laid

immediate use

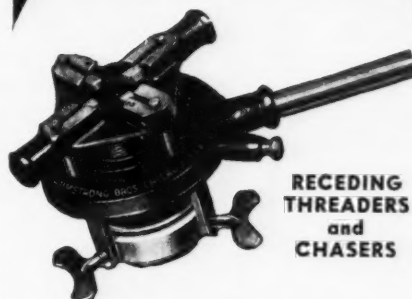
give long service

Write for full information

KOTAL COMPANY  
360 Springfield Ave.  
Summit, N. J.

**KOTAL** *Master Mixes*

The Advanced All-Weather  
Aid in Building Better Roads



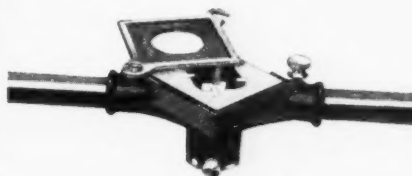
**RECEDING  
THREADERS  
and  
CHASERS**

These improved threaders come in "Standard," "Ratchet," and "Geared" types operating on the "receding die" principle. They will cut perfect threads in the following sizes: "Standard" and "Ratchet"—1", 1 $\frac{1}{4}$ ", 1 $\frac{1}{2}$ " and 2" and "Geared"—2 $\frac{1}{2}$ ", 3", 3 $\frac{1}{2}$ ", and 4". Chasers are made of special analysis tool steel, hardened, drawn, tempered, and tested.



### ADJUSTABLE STOCKS and DIES

"ARMSTRONG BROS." stocks are more compact, and are smoothly finished to fit comfortably in the hand. Each takes all standard make dies of its type. They are made in all sizes and are sold singly or with dies and guides in sets.



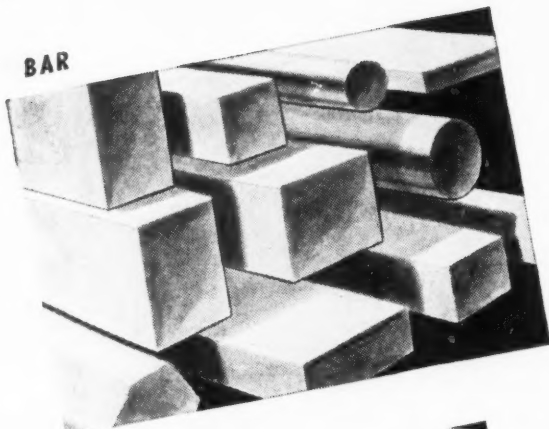
"ARMSTRONG BROS." Dies, both solid and adjustable, are machined from special tool steel, with "backed-off" ground teeth. They cut easily, cut smooth, close-fitting threads, and "spin" off pipe ends without jamming or sticking. They fit all standard make stocks.

### ARMSTRONG BROS. TOOL CO.

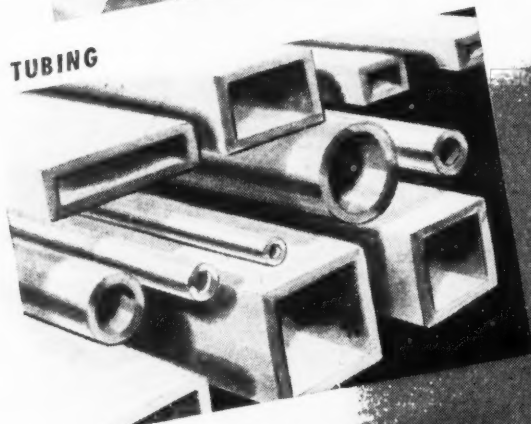
334 N. Francisco Ave.  
Chicago 12, Illinois

Eastern Whse. and Sales: 199  
Lafayette St., New York 12, N. Y.  
Pacific Coast Whse. and Sales Office:  
1275 Mission St., San Francisco 3,  
Calif.

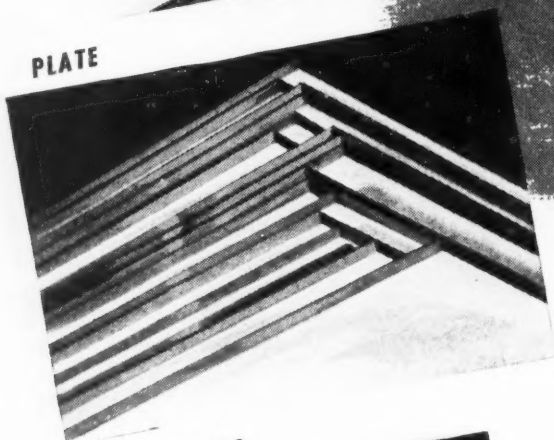




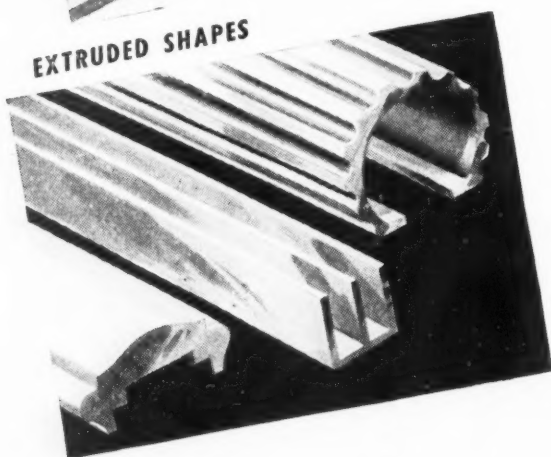
BAR



TUBING



PLATE



EXTRUDED SHAPES

# ALUMINUM MILL PRODUCTS

**AVAILABLE TO  
FABRICATORS  
right!  
now!**

Consider your aluminum needs—then get in touch with your nearest War Assets Administration Regional Office to see if we can fill your requirements. Even your highly specialized requirements might be filled from WAA surplus stocks. It costs nothing to find out. Orders are filled quickly and without fuss.

All metals are sold under existing priority regulations. VETERANS OF WORLD WAR II are invited to be certified at the War Assets Administration Certifying Office serving their area, and then to purchase the materials offered herein.

Exporters are considered as wholesalers in the purchase of surplus property. Any question on export control should be referred to Office of International Trade, Department of Commerce, Washington, D. C.

## WAR ASSETS ADMINISTRATION

Offices located at: Atlanta • Birmingham  
Boston • Charlotte • Chicago • Cincinnati  
Cleveland • Dallas • Denver • Detroit • Fort  
Worth • Helena • Houston • Jacksonville  
Kansas City, Mo. • Little Rock • Los Angeles

**GOVERNMENT  
OWNED  
SURPLUS**

Louisville • Minneapolis • Nashville • New  
Orleans • New York • Omaha  
Philadelphia • Portland, Ore. • Richmond  
St. Louis • Salt Lake City • San Antonio  
San Francisco • Seattle • Spokane • Tulsa

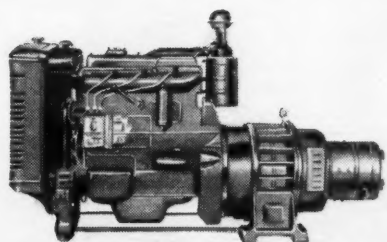
10749



# Your most logical buy

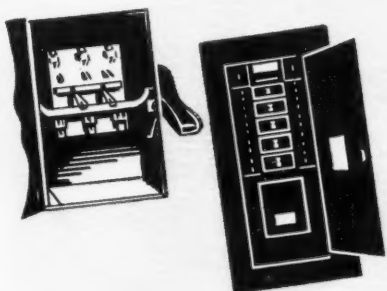
## SURPLUS ELECTRICAL EQUIPMENT

from **WAA**



**GENERATOR SETS—GASOLINE AND DIESEL ENGINE DRIVEN**

Alternating and direct current, unused and in good condition. Also a wide variety of used sets.



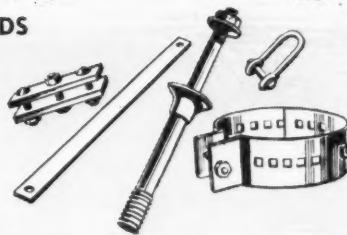
**PANEL BOARDS AND SWITCH BOARDS**

For lighting and appliance circuits. All electrical services and voltages.

Priority purchasers have previously had an opportunity to fulfill their needs.

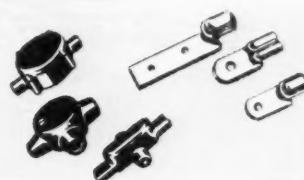
Purchasers of Pole-line Hardware for power must make certification required under Housing Expediter Priority Regulation 2.

These materials are available for export. Any question on export control should be referred to Office of International Trade, Department of Commerce, Washington, D. C.



**POLE-LINE HARDWARE**

Many items of hardware for transmission, distribution and communication lines. Including: Pins, brackets, braces, bolts, clamps, hooks, rings, etc. Unused and in good condition.



**WIRING DEVICES**

Hundreds of items for wiring systems, including attachment plugs, connectors, connector bodies, conduit fittings, outlets and switches.

# WAR ASSETS ADMINISTRATION

**GOVERNMENT  
OWNED  
SURPLUS**

Offices located at: Atlanta • Birmingham  
Boston • Charlotte • Chicago • Cincinnati  
Cleveland • Dallas • Denver • Detroit  
Fort Douglas, Utah • Fort Worth • Helena  
Houston • Jacksonville • Kansas City, Mo.

Little Rock • Los Angeles • Louisville  
Minneapolis • Nashville • New Orleans  
New York • Omaha • Philadelphia • Portland,  
Ore. • Richmond • St. Louis • San Antonio  
San Francisco • Seattle • Spokane • Tulsa  
691-4

# Advertisers in this issue

Alemite Div., Stewart-Warner Co.	125
Allied Steel Products, Inc.	160
Allis-Chalmers Mfg. Co.	16, 17
American Hoist & Derrick Co.	160
American Manganese Steel Div.,	
American Brake Shoe Co.	122
American Steel & Wire Co.	128
Armstrong Bros. Tool Co.	169
Assoc. Gen. Contrs. of America, Inc.	131
Athey Products Corp.	40
Atlas Powder Co.	46
Atlas Steel Construction Co.	12
Austin-Western Co.	35
Baker Manufacturing Co.	18, 19
Barber-Greene Company	157
Barnes Mfg. Co.	168
Bay City Shovels, Inc.	63
Bernstein Brothers	172
Bethlehem Steel Co.	34, 68
Black & Decker Mfg. Co.	119
Blaw-Knox Div., Blaw-Knox Co.	138
Briggs & Stratton Corp.	118
Buckeye Traction Ditcher Co.	65
Bucyrus-Erie Co.	55
Buda Company	67
Carlyle Rubber Co.	158
Caterpillar Tractor Co.	36, 37
C. I. T. Corporation	133
Coffing Hoist Co.	140
Complete Machy. & Equip. Co.	172
Construction Machinery Co.	166
Continental Motors Corp.	10
Contractors Pump Bureau	136
Cummins Engine Co., Inc.	143
Diamond Chain Co., Inc.	58
Dixon Valve & Coupling Co.	169
DuPont de Nemours & Co., Inc.,	
E. I. (Fabrics Div.)	163
Electric Tamper & Equipment Co.	39
Electroline Co.	146
Etnyre & Co., E. D.	168
Euclid Road Machinery Co., The	7
Ford Motor Company	
(Industrial Engine Div.)	126
(Truck Div.)	139
Galion Iron Works & Mfg. Co., The	127
Gar Wood Industries, Inc.	29
Gardner-Denver Co.	50
General Excavator Co.	147
General Motors Corp.	
(Detroit Diesel Engine Div.)	42

General Tire & Rubber Co., The	121
Goodall Rubber Co.	124
Goodrich Co., B. F.	9
Goodyear Tire & Rubber Co., The	70
Gorman-Rupp Co., The	161
Griffin Wellpoint Corp.	122
Gulf Refining Co.	149
Haiss Mfg. Co., Inc., George	140
Harnischfeger Corporation	114, 115
Hazard Wire Rope Div., American	
Chain & Cable Co., Inc.	3rd Cover
Hcil Company, The	116
Highway Equipment Co., Inc.	162
Homelite Corp.	51
Hough Company, Frank	24, 25
Huber Mfg. Co., The	123
Independent Pneumatic Tool Co.	28
Ingersoll-Rand Co.	26
Inland Steel Company	2nd Cover
International Harvester Co.	22, 23
Iowa Manufacturing Co.	52, 53
Irvington Form & Tank Corp.	12
Jaeger Machine Co., The	57, 146
Johns-Manville	47, 165
Jones & Laughlin Steel Corp.	109
Joy Mfg. Co. (Sullivan Div.)	113
Ka-Mo Tools Co., Inc.	166
Keystone Asphalt Pdts. Co., Inc. Div.,	
American-Marietta Co.	160
Koehring Company	48, 49
Kotal Company	169
LaPlant-Choate Mfg. Co., The	135
Laughlin Co., The Thomas	164
Le Roi Co.	64
Leschen & Sons Rope Co., A.	56
Le Tourneau, Inc., R. G.	60, 61
Lima Locomotive Works, Inc.	69
Link-Belt Speeder Corp.	159
Lone Star Cement Corp.	5
Lufkin Rule Co., The	134
Macwhyte Co.	38
Mall Tool Company	6
Marlow Pumps	66
McGraw-Hill Book Co., Inc.	154, 164
McKiernan-Terry Corp.	148
Meili-Blumberg Corp.	158
Mercer-Robinson Co., Inc.	152
Michigan Power Shovel Co.	167
Mixer Manufacturers' Bureau	144
Montgomery & Co., Inc.	172
Moretrench Corporation	14

National Lead Company	13
Nelson Corp., The Herman	59
Northwest Engineering Co.	11
Novo Engine Co.	27
Nox-Rust Chemical Corp.	154
Oakite Products, Inc.	145
Oliver Corp., The	2, 3
Osgood Co., The	147
Owen Bucket Co., The	134
Page Engineering Co.	153
Paris Manufacturing Co.	117
Perfection Steel Body Co., The	120
Pettibone Mulliken Corp.	43
Piper Mfg. Co., R. J.	154
Porto-Pump, Inc.	150
R. P. B. Corporation	164
Rodgers Hydraulic, Inc.	8
Rogers Brothers Corp.	148
Searchlight Section	172
Schramm, Inc.	41
Shell Oil Company	137
Shunk Mfg. Co.	162
Sinclair Refining Co.	62
Smith Company, Nowery J.	21
Snap-on Tools Corp.	141
Socony-Vacuum Oil Co., Inc.	44, 45
Sonoco Products Co.	130
Southwest Welding & Mfg. Co.	132
Speedway Mfg. Co.	152
Standard Oil Co. of Indiana	54
Sterling Machinery Corp.	172
Sterling Wheelbarrow Co.	156
Syntron Company	145
Templeton, Kenly & Co.	150
Texas Company, The	30, 31
Thermoid Company	129
The Shovel Co., The	33
Timken-Detroit Axle Co., The	155
Timken Roller Bearing Co., The	4th Cover
Union Metal Mfg. Co., The	151
Unit Crane & Shovel Corp.	20
United States Steel Corp.,	
Subsidiaries	111, 128
Universal Atlas Cement Co.	111
Viber Company, The	136
Vulcan Iron Works	150
War Assets Administration	170, 171
Watson-Sillman Co.	15
Wellman Engineering Co., The	156
Westinghouse Airbrake Co.	32
White Mfg. Co.	166
Wickwire Spencer Steel Div.,	
Colorado Fuel & Iron Corp.	142

## WHERE TO BUY

Featuring additional Products, Specialties and Services for the Construction Industry

### COMPLETE WELL POINT SYSTEMS WILL DRY UP ANY EXCAVATION

*Faster—More Economically*

Write For Job Estimate and 32 page Catalog

### COMPLETE

MACHINERY & EQUIPMENT CO., Inc.

36-36 11th St., Long Island City, N. Y.

Tel. IRonsides 6-8660

Branch: Third Avenue & Adams St., Gary, Indiana

Telephone: Gary 23983



### WIRE ROPE CUTTER

CAPACITY — 1½"

PRICE — \$27.50

BULLETIN ON REQUEST

Dealers Territory Open

### MONTGOMERY

and Company, Inc.

53 PARK PLACE • NEW YORK 7, N. Y.

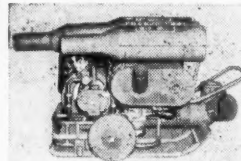
### A Good Habit

This "Where to Buy" Section supplements other advertising in this magazine.

It's a good habit to check this page—every issue.

## SEARCHLIGHT SECTION

### PORTABLE HEATER SALE



Stewart-Warner portable powerful 100,000 BTU gasoline-burning Heaters complete with turbine type blower and 1½ hp air-cooled ball-bearing engine.

PORTABLE SELF-POWERED MANY PURPOSE HEATER

HEATING buildings, shops, sheds, warehouses, manholes, tunnels, buildings under construction, spot-heating, etc.

PRE-HEATING engines, tractors, trucks, equipment, etc.

THAWING frozen areas, machinery, pipe lines, tanks, etc.

DRYING plaster, paint, mortar, concrete, etc.

ORIGINAL COST.....\$583.00

**FREIGHT PREPAID \$195.00**  
IN U. S. A.

Send for literature

**BERNSTEIN BROTHERS**

Since 1890

Dept. B, PUEBLO, COLORADO

**STERLING PUMPS**

CHOICE OF LEADING CONTRACTORS EVERYWHERE

SIMPLE  
DEPENDABLE  
RUGGED

WRITE NOW

**STERLING MACHINERY CORPORATION**  
405 Southwest Blvd., Kansas City, Mo.



13  
59  
11  
27  
154  
145  
2, 3  
147  
134  
153  
117  
120  
43  
154  
150  
164  
8  
148  
172  
41  
137  
162  
62  
21  
141  
44, 45  
130  
132  
152  
54  
172  
156  
145  
150  
30, 31  
129  
33  
155  
h Cover  
151  
20  
111, 128  
111  
136  
150  
170, 171  
15  
156  
32  
166  
142

**NOW... YOU CAN GET YOUR**

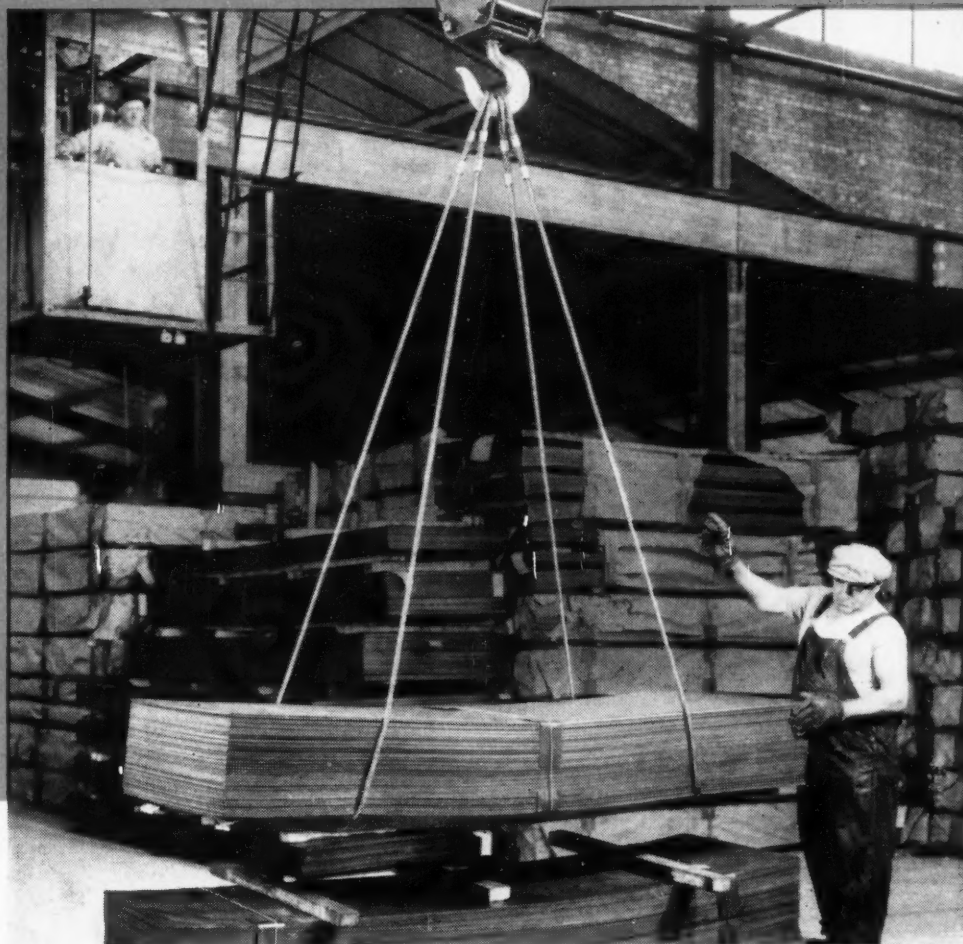


**Registered**

**SLINGS**

**from**

**OPEN STOCK**



BTU  
rbine  
aring  
ANY  
ouses.  
tion.  
ueks.  
lines.  
etc.  
83.00  
00  
S

If your local Hazard distributor does not have a stock of standard sizes and lengths of Hazard Registered Slings on hand he can get them for you immediately by phoning the Hazard District Office. Order today. You will find them the most efficient wire rope slings you have ever used.

The Acco-Loc Safety Splice itself

is neat, compact, flexible to the terminal. No seizing wires to ravel; no wire ends to barb. No distortion of rope structure. Always develops 100% of rope strength. Hazard Registered Slings are made of LAY-SET Preformed Wire Rope (Imp. Plow Steel) the kink-resisting, easy-to-handle, safe wire rope.

**ACCO**

Wilkes-Barre, Pa., Atlanta, Chicago, Denver, Houston, Los Angeles, New York, Philadelphia, Pittsburgh, Portland, San Francisco, Tacoma, Seattle, Bridgeport, Conn.

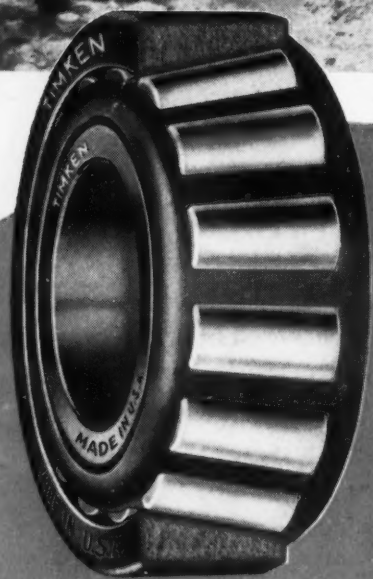
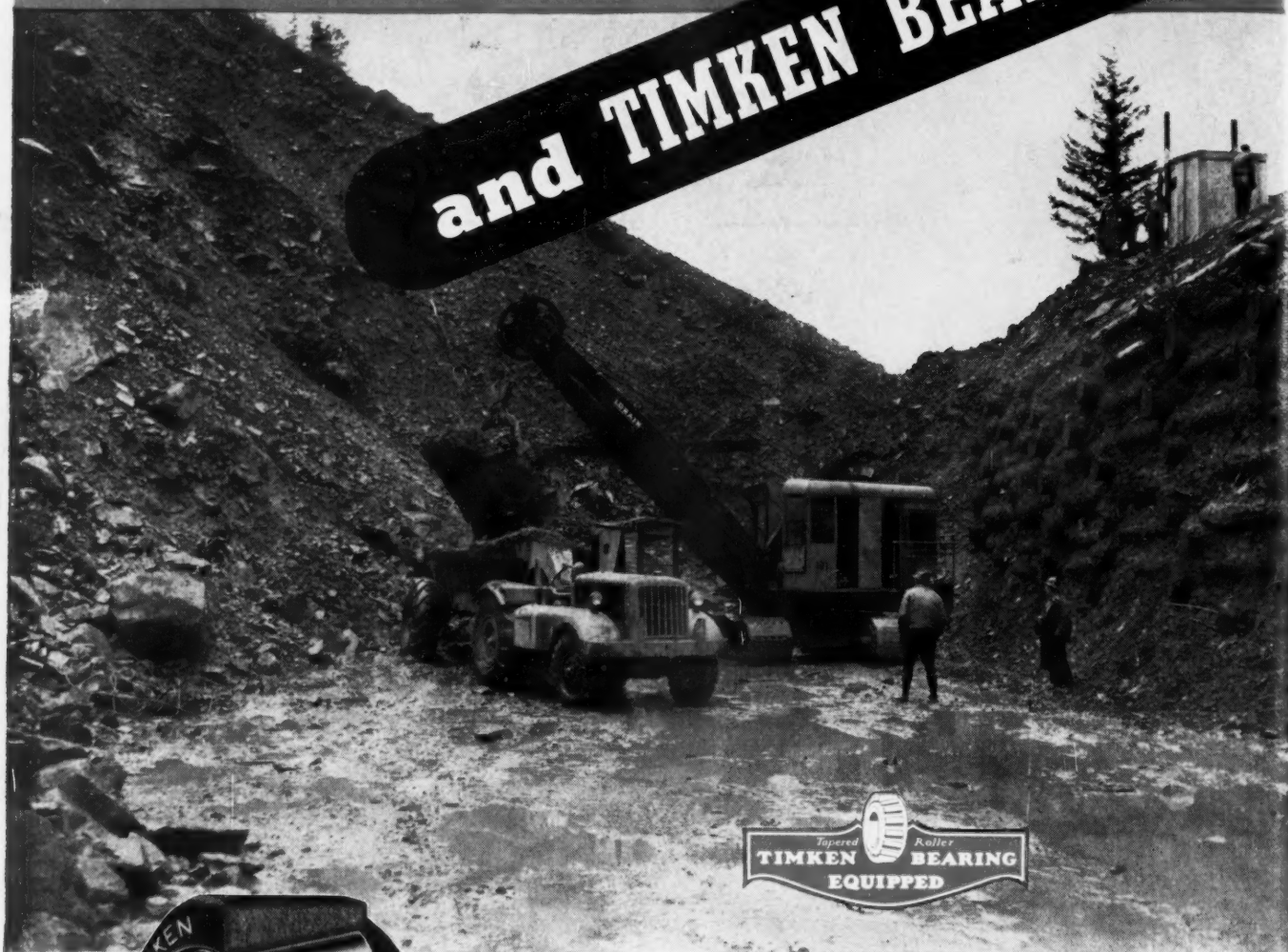


**HAZARD WIRE ROPE DIVISION  
AMERICAN CHAIN & CABLE**

*In Business for Your Safety*

4  
**Leave it to Lorain-**

**and TIMKEN BEARINGS**



**TIMKEN**  
TRADE-MARK REG. U. S. PAT. OFF.  
**TAPERED ROLLER BEARINGS**

A big landslide at the Columbia River Gorge blocked a main highway for several days.

Emergency equipment rushed to the job included the 2-yard Lorain shovel shown at work in the photograph. This shovel alone moved some 50,000 yards. It is owned by Leonard & Slate, Contractors, Multnomah, Oregon and is the fifth Lorain purchased by them.

The Thew Shovel Company, Lorain, Ohio, has been an enthusiastic user of Timken Tapered Roller Bearings for many years; their judgment in adopting them and their faith in them have been vindicated over and over again. They know the presence of Timken Bearings means better equipment and better selling equipment.

Make sure you have Timken Bearings in your machines — and look for the trade-mark "TIMKEN" on every bearing you use. The Timken Roller Bearing Company, Canton 6, Ohio.



